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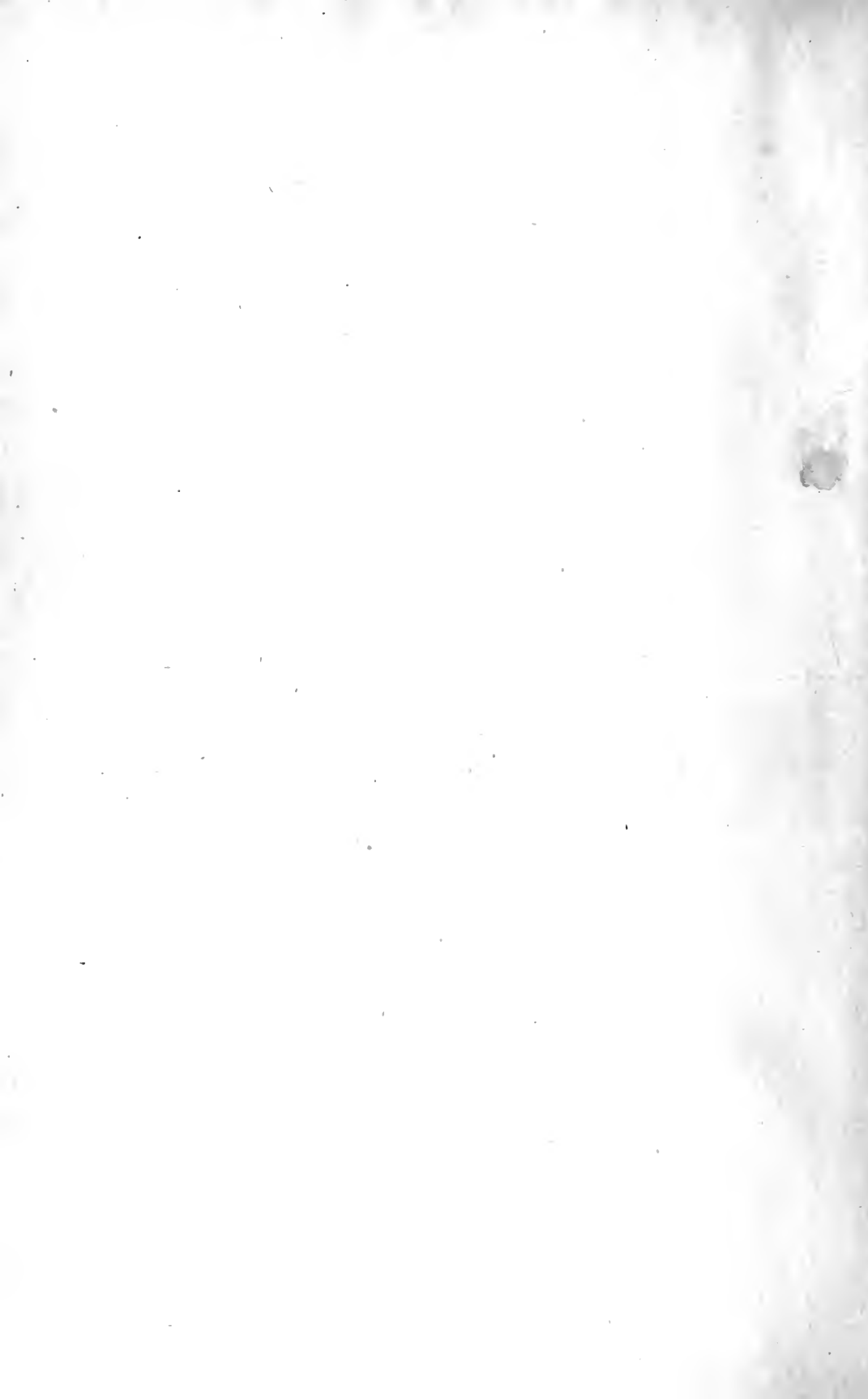
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NINETEENTH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

OF THE

STATE OF OHIO

FOR THE

YEAR ENDING DECEMBER 31, 1904



Springfield, Ohio :
The Springfield Publishing Company,
State Printers.
1905.

LETTER OF TRANSMITTAL.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,

COLUMBUS, July 7th, 1905.

To His Excellency, MYRON T. HERRICK, Governor of Ohio:

SIR:—In accordance with Section 8 of an "Act to create and establish a State Board of Health," as amended May 7th, 1902, the accompanying report, which is for the calendar year 1904, is herewith submitted.

Respectfully,
C. O. PROBST,
Secretary.

MEMBERS OF THE OHIO STATE BOARD OF HEALTH.

WM. T. MILLER, M. D., <i>President</i> , Cleveland.....	December, 1904
FRANK WARNER, M. D., <i>Vice-President</i> , Columbus.....	December, 1905
W. C. CHAPMAN, M. D., Toledo.....	December, 1906
JOSIAH HARTZELL, Ph. D., Canton.....	December, 1907
DARWIN G. PALMER, M. D., Geneva.....	December, 1908
BYRON STANTON, M. D., Cincinnati.....	December, 1909
J. C. CROSSLAND, M. D., Zanesville.....	December, 1910
C. O. PROBST, M. D., <i>Secretary</i> .	

Dr. Wm. T. Miller was reappointed.

GENERAL REPORT.

This is the nineteenth annual report of the State Board of Health, and is for the year ending December 31, 1904.

PERSONNEL OF THE BOARD.

There has been no change in the personnel of the Board since the last report. The term of office of Dr. Wm. T. Miller having expired December 13, 1904, he was reappointed by Governor Herrick, for a term of seven years.

MEETINGS.

Four meetings of the Board were held during the year; two in Columbus, one in Cleveland and one in Cincinnati.

The fourteenth annual conference with local boards of health was held in Columbus in connection with the regular January meeting.

There was a large attendance, and the papers and discussions were printed in full in the *Ohio Sanitary Bulletin* and sent to the various boards of health throughout the State and others interested in sanitary matters.

SMALLPOX.

The smallpox epidemic, which began in Ohio in 1898, reached its height in 1903 when 6,903 cases were reported, and then began to decline with 4,570 cases and 91 deaths reported for the year 1904. (It seems likely that the disease has now spent itself and that we will soon be practically free from it. The great majority of our people have been vaccinated within the last five or six years, and this will give us protection against outbreaks of large proportions for some years to come. Smallpox, however, is not to be suppressed by improved sanitary conditions. Cleanliness, personal or municipal, affords little protection against it. It is always prevailing in some part of the world, and its long period of incubation—two weeks—makes it impossible to guard ourselves against its importation from far distant countries. If vaccination is neglected for ten or fifteen years, as it has

been in the past, we will again have an unprotected population, ripe for another epidemic of this easily preventable disease.)

Following is a table showing the counties and places invaded by smallpox, and the number of cases and deaths reported during the year ending December 31st, 1904:

CASES AND DEATHS OF SMALLPOX REPORTED TO THE STATE BOARD OF
HEALTH FROM JANUARY 1 to DECEMBER 31, 1904.

COUNTY.	PLACE.	CASES.	DEATHS.
Adams	Stout	1	.....
Allen.....	German Township.....	8	.....
	Lima.....	38	.....
	Marion Township.....	1	.....
	Shawnee Township.....	14	.....
	West Cairo.....	14	.....
Ashland.....	Loudonville.....	1	.....
	Orange Township.....	24	.....
Ashtabula.....	Andover Township.....	2	.....
	Ashtabula.....	1	.....
	Conneaut.....	5	.....
	Conneaut Township.....	6	.....
	Kingsville Township.....	1	.....
Athens.....	Buchtel	49	.....
	Dover Township.....	1	.....
	Glouster.....	1	.....
	Jacksonville.....	8	.....
	Nelsonville.....	14	.....
	Trimble.....	5	5
	Trimble Township.....	40	.....
	York Township.....	70	.....
Auglaize.....	Geyer	12	.....
	Noble Township.....	6	.....
	St. Marys.....	7	2
	Salem Township.....	11	1
Belmont	Mead Township.....	1	.....
	Morristown.....	4	.....
	Pease Township.....	1	.....
	Powhatan Point.....	1	.....
	Richland Township.....	2	.....
	Union Township.....	3	.....
Butler.....	Hamilton.....	7	.....
	Middletown.....	1	.....
Carroll.....	Carrollton.....	17	.....
	Center Township.....	25	.....
	Monroe Township.....	3	.....
	Orange Township.....	5	.....
	Union Township.....	15	.....
Champaign.....	Mechanicsburg.....	1	.....
	Salem Township.....	4	.....
	Urbana.....	9	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Clark.....	Springfield.....	9	.....
Clermont.....	Union Township.....	1	.....
Columbiana.....	East Liverpool.....	31	.....
	East Palestine.....	1	1
	Franklin Township.....	6	.....
	Middleton Township.....	1	.....
	Perry Township.....	1	.....
	Salem Township.....	2	.....
	Salineville.....	1	.....
	Unity Township.....	1	.....
	Washingtonville.....	22	.....
	Wayne Township.....	1	.....
Coshocton.....	Coshocton.....	77	.....
	Franklin Township.....	58	.....
	Jackson Township.....	4	.....
	Keene Township.....	2	.....
	Lafayette Township.....	7	.....
	Linton Township.....	7	.....
	Monroe Township.....	1	.....
	Tuscarawas Township.....	14	.....
	Virginia Township.....	8	.....
	West Lafayette.....	16	.....
Crawford.....	Bucyrus.....	91	.....
	Bucyrus Township.....	8	.....
	Chatfield Township.....	1	.....
	Dallas Township.....	2	.....
	Galion.....	7	.....
	Holmes Township.....	14	.....
	Tod Township.....	1	.....
Cuyahoga.....	Cleveland.....	40	6
Darke.....	Butler Township.....	3	.....
	Franklin Township.....	1	.....
Delaware	Concord Township.....	1	.....
	Delaware Township.....	1	.....
	Harlem Township.....	5	.....
	Radnor Township.....	6	.....
Erie.....	Sandusky.....	26	1
Fairfield.....	Baltimore.....	1	.....
	Lancaster.....	3	.....
	Liberty Township.....	7	.....
Fayette.....	Union Township.....	1	.....
Franklin.....	Clinton Township.....	46	.....
	Columbus.....	112	.....
	Franklin Township.....	3	.....
	Jackson Township.....	2	.....
	Jefferson Township.....	4	.....
	Marion Township.....	16	1
	Truro Township.....	2	.....
Fulton.....	Fulton Township.....	7	.....
Gallia.....	Cheshire Township.....	5	.....
	Gallipolis.....	1	.....
	Green Township.....	1	.....
	Guyan Township..	8	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Gallia—Concl'd	Springfield Township.....	5	.....
	Walnut Township.....	9	.....
Greene.....	Bowersville.....	1	.....
	Xenia.....	5	.....
	Xenia Township.....	2	.....
Guernsey.....	Byesville.....	47	.....
	Cambridge.....	15	.....
	Cambridge Township.....	2	.....
	Center Township.....	2	.....
	Cumberland.....	8	.....
	Jackson Township.....	16	.....
	Knox Township.....	6	.....
	Liberty Township.....	1	.....
	Millwood Township.....	5	.....
	Richland Township.....	4	.....
	Salesville.....	11	.....
	Senecaville.....	3	.....
	Spencer Township.....	16	.....
Hamilton.....	Valley Township.....	16	.....
	Wills Township.....	5	.....
	Cincinnati.....	174	14
	Crosby Township.....	3	.....
	Delhi Township.....	5	.....
	Green Township.....	2	.....
	Lockland.....	1	.....
	Springfield Township.....	1	.....
Hancock.....	Allen Township.....	3	.....
	Eagle Township.....	2	.....
	Findlay.....	20	.....
Hardin.....	Buck Township.....	1	.....
	Cessna Township.....	11	.....
	Forest.....	1	.....
	Kenton.....	21	.....
	Pleasant Township.....	1	.....
Harrison.....	Taylor Creek Township.....	2	.....
	Cadiz.....	2	.....
	Green Township.....	6	1
	Hopedale.....	2	.....
	Monroe Township.....	5	1
Hocking.....	Benton Township.....	1	.....
	Falls Township.....	19	.....
	Goodhope Township.....	99	1
	Laurelville.....	3	.....
	Murray.....	6	.....
	Perry Township.....	1	.....
	Salt Creek Township.....	2	.....
Holmes.....	Ward Township.....	90	.....
	Glenmont.....	25	.....
	Knox Township.....	13	.....
	Richland Township.....	24	.....
Jackson.....	Bloomfield Township.....	5	.....
	Coal Township.....	1	.....
	Hamilton Township.....	3	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Jackson—Concl'd	Jefferson Township.....	7	.....
	Lick Township.....	5	.....
	Madison Township.....	2	.....
	Milton Township.....	3	.....
	Wellston.....	4	.....
Jefferson.....	Steubenville.....	76	.....
	Toronto.....	2	.....
	Wayne Township.....	4	.....
Knox.....	Mt. Vernon.....	1	.....
Lake.....	Fairport Harbor.....	1	.....
Lawrence.....	Elizabeth Township.....	12	1
	Fayette Township.....	5	1
	Ironton.....	80	7
	Mason Township.....	35	.....
	Perry Township.....	8	4
	Rome Township.....	4	.....
	Symmes Township.....	7	.....
	Upper Township.....	17	2
	Windsor Township.....	6	.....
	Windsor Township.....	6	.....
Licking.....	Etna Township.....	1	.....
	Granville Township.....	3	.....
	Harrison Township.....	31	.....
	Hebron.....	10	.....
	Hopewell Township.....	1	.....
	Johnstown.....	3	.....
	Newark.....	28	2
	Newark.....	28	2
Logan.....	Belle Center.....	1	.....
	Bellefontaine.....	5	.....
	Bokes Creek Township.....	7	.....
	Jefferson Township.....	1	.....
	Quincy.....	1	.....
	Richland Township.....	1	.....
	Rushcreek Township.....	41	.....
	Rushsylvania.....	12	.....
	Stokes Township.....	7	.....
Lorain.....	Zanesfield.....	1	.....
	Lorain.....	7	2
Lucas.....	Toledo.....	25	.....
	Washington Township.....	17	.....
Mahoning.....	Austintown Township.....	6	.....
	Goshen Township.....	1	.....
	Milton Township.....	4	.....
	Youngstown.....	155	3
	Youngstown Township.....	3	.....
Marion.....	Agosta.....	5	.....
	Big Island Township.....	1	.....
	Bowling Green Township.....	4	.....
	Caledonia.....	4	.....
	Larue.....	5	.....
	Marion.....	76	.....
	Marion Township.....	94	1
	Pleasant Township.....	5	.....
	Prospect.....	12	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Marion—Concl'd	Prospect Township.....	3	.....
	Richland Township.....	15	.....
	Tully Township.....	2	.....
Meigs.....	Olive Township.....	1	.....
	Orange Township.....	6	.....
Miami.....	Bethel Township.....	1	.....
	Brown Township.....	1	.....
	Piqua.....	40	1
	Tippecanoe City.....	1	.....
Montgomery.....	Brookville.....	1	.....
	Butler Township.....	3	.....
	Dayton.....	176	22
	German Township.....	2	.....
	Harrison Township.....	34	1
	Jefferson Township.....	6	.....
	Madison Township.....	11	.....
	Mad River Township.....	18	.....
	Miamisburg.....	29	.....
	Trotwood.....	15	.....
	Van Buren.....	2	1
	Vandalia.....	2	2
	Washington Township.....	3	.....
Morgan.....	Bristol Township.....	1	.....
	McConnelsville.....	2	.....
	York Township.....	13	.....
Morrow.....	Canaan Township.....	4	.....
	Cardington.....	5	.....
	Cardington Township.....	1	.....
	Westfield Township.....	1	.....
Muskingum.....	Adams Township.....	3	.....
	Falls Township.....	2	.....
	Fultonham.....	1	.....
	Highland Township.....	2	.....
	Hopewell Township.....	10	.....
	Meigs Township.....	5	.....
	Richhill Township.....	2	.....
	Springfield Township.....	1	.....
	Washington Township.....	5	.....
	Zanesville.....	28	.....
Noble.....	Berne.....	28	.....
	Brookfield Township.....	13	.....
	Buffalo Township.....	10	.....
	Center Township.....	65	.....
	Enoch Township.....	4	.....
	Jefferson Township.....	13	.....
	Olive Township.....	8	.....
	Seneca Township.....	15	.....
	Sharon Township.....	2	.....
	Stock Township.....	43	.....
Ottawa.....	Wayne Township.....	63	.....
	Bay Township.....	31	.....
	Carroll Township.....	23	.....
	Genoa.....	6	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Ottawa—Concl'd	Port Clinton.....	1	.....
	Salem Township.....	14	.....
Perry.....	Bearfield Township.....	42	2
	Crooksville.....	18	.....
	Harrison Township.....	21	.....
	Meigs Township.....	1	.....
	Monroe Township.....	26	.....
	New Straitsville.....	3	.....
	Pike Township.....	1	.....
Pickaway.....	Circleville.....	2	.....
	Madison Township.....	1	.....
	Salt Creek Township.....	4	.....
Pike.....	Seal Township.....	3	.....
Portage.....	Deerfield Township.....	1	.....
	Hiram.....	1	.....
	Paris Township.....	3	.....
Preble.....	Camden.....	1	.....
	Somers Township.....	1	.....
	Twin Township.....	3	.....
Putnam.....	Belmore.....	1	.....
	Glandorf.....	7	.....
	Jennings Township.....	21	.....
	Ottawa Township.....	4	.....
	Sugar Creek Township.....	1	.....
Richland.....	Belleville.....	1	.....
	Madison Township.....	2	.....
	Mansfield.....	8	.....
	Shelby.....	3	.....
	Springfield Township.....	2	1
	Troy Township.....	8	.....
Ross.....	Chillicothe.....	30	.....
	Colerain Township.....	10	.....
	Green Township.....	41	.....
	Harrison Township.....	4	.....
	Huntington Township.....	1	.....
	Kingston.....	94	.....
	Scioto Township.....	3	.....
Scioto.....	Springfield Township.....	3	.....
	Bloom Township.....	12	.....
	Porter Township.....	1	.....
Shelby.....	Portsmouth.....	6	.....
	Botkins.....	7	.....
	Cynthiana Township.....	1	.....
	Dinsmore Township.....	25	.....
	Franklin Township.....	1	.....
	Jackson Township.....	22	.....
	Jackson Center.....	5	.....
	Sidney.....	5	.....
Stark.....	Alliance.....	17	1
	Canton.....	72	.....
	Canton Township.....	6	.....
	Lawrence Township.....	2	.....
	Louisville.....	3	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Stark—Concluded	Nimishillen Township.....	6	.....
	Osnaburg.....	19	.....
	Paris Township.....	8	.....
	Plain Township.....	7	.....
	Tuscarawas Township.....	4	.....
Summit.....	Akron.....	20	1
	Barberton.....	3	.....
	Coventry Township.....	2	.....
	Norton Township.....	9	.....
	Trumbull.....	1	.....
Trumbull.....	Bazetta Township.....	1	.....
	Braceville.....	6	.....
	Champion Township.....	54	.....
	Gustavus Township.....	3	.....
	Liberty Township.....	1	.....
	Mecca Township.....	1	.....
	Southington Township.....	1	.....
	Vienna Township.....	1	.....
	Warren.....	5	.....
	Warren Township.....	7	.....
Tuscarawas.....	Canal Dover.....	39	.....
	Clay Township.....	1	.....
	Dennison.....	13	.....
	Mill Township.....	7	.....
	Newcomerstown.....	6	.....
	Uhrichsville.....	24	.....
Union.....	Claibourne Township.....	2	.....
	Jackson Township.....	13	.....
	Leesburg Township.....	1	.....
	Richwood.....	2	.....
Van Wert.....	Hoaglin Township.....	1	.....
	Tully Township.....	1	.....
	Van Wert.....	12	1
Vinton.....	Eagle Township.....	7	.....
	McArthur.....	1	.....
	Zaleski.....	3	.....
Warren.....	Clear Creek Township.....	4	.....
	Hamilton Township.....	5	.....
Washington.....	Barlow Township.....	3	.....
	Belpre.....	1	.....
	Dunham Township.....	2	.....
	Independence Township.....	3	1
	Macksburg.....	15	.....
	Marietta.....	2	.....
	Marietta Township.....	6	.....
	Wayne.....	8	.....
Wayne.....	Apple Creek.....	1	.....
	Plain Township.....	2	.....
	Wayne Township.....	2	.....
Williams.....	Bryan.....	65	.....
	Florence Township.....	2	.....
	Madison Township.....	12	.....
	Millcreek Township.....	3	.....
	Montpelier.....	5	.....
	Pioneer.....	2	.....
	Stryker.....	6	.....

COUNTY.	PLACE.	CASES.	DEATHS.
Wood.....	Bowling Green.....	5	.....
	Haskins.....	1	.....
	Jackson Township.....	4	.....
	Pemberville.....	6	.....
Wyandot.....	Carey.....	3	.....
	Marseilles.....	7	.....
	Marseilles Township.....	8	.....
	Mifflin Township.....	13	.....
Total, 74 Counties 368 Places.....		4,570	91

WATERS AND WATER SUPPLIES.

The importance of the Board's work in connection with the waters and public water supplies of the State grows each year. The demands for the conveniences of modern life are forcing public water supplies and sewerage upon villages of even small size. At present there are 71 cities and 177 villages having a public water supply. These cities and villages have an estimated aggregate population of 2,463,800, or about fifty-five per cent of the total population of the State.

The Board has given careful consideration to all plans for water supplies or sewerage presented to it. In each case it has endeavored to insure the selection of a water originally pure and where this is impossible or impracticable, the introduction of purification works of guaranteed efficiency.

When water works are once introduced their future is largely under local control. A supply of water originally pure may, with our rapidly changing conditions, become impure and unsafe within a few years. The act of the last Legislature giving municipalities the power to punish and prevent the pollution of their water supplies for a distance of twenty miles from corporation limits will be helpful, in preserving their purity, but the remedy is inadequate. The evidence is abundant that polluted streams may extend their baneful influence much farther than twenty miles. Furthermore, municipalities cannot be depended upon to enforce this act. It may be questionable how far the State is warranted or authorized to interfere in local affairs. But a public water supply permitted to become dangerously impure, ceases to be a local matter. It more or less threatens the entire State.

The city of Columbus should not be held up for past sins in this direction, for she is now engaged, at a large cost, in works for the purification of both water and sewage. And yet, during the past she

has been responsible for a considerable number of cases and several deaths among citizens from other parts of the State, (caused by typhoid fever contracted from her polluted water supply). Considering the large number of visitors to Columbus, and the number of trains supplied with drinking water there, it is not surprising, when the city itself was going through an epidemic of typhoid fever, that the disease should have been spread beyond her limits. In two years Columbus lost 241 of her citizens from this disease.

The history of Columbus is the history of Cincinnati, of Cleveland, and indeed of nearly all the large cities of this country. Increasing population and changing conditions convert a once reasonably pure public water supply into one that is impure and unsafe. And it is not until hundreds, and often thousands, of lives have been needlessly sacrificed that the local authorities, or the citizens themselves (in voting for necessary bond issues), are willing to correct these evil conditions.

If there could be any doubt as to the results of using polluted water this waiting policy might be justified, but in every part of the world wherever a city's water supply has become appreciably polluted by sewage, diseases of a certain class have invariably prevailed among her citizens. And on the other hand, where such conditions have existed and water purification works have been introduced, there has invariably been a marked reduction in the deaths from such diseases.

The State might well consider whether she is not justified in compelling a city to act where conditions have been permitted to arise where the lives and health of not only her own people but of all the citizens of the State are more or less imperiled thereby. A city exists only by right of the State. In extreme cases the State might even withdraw its charter. If the State can interfere to stop a prize fight, why should it not prevent the use of a death-dealing water supply?

Without attempting to suggest a definite plan, it would seem not improper for the State Board of Health to collect the evidence to show that the water supply of any city is dangerous to life and health. The Attorney-General might present this evidence to a court of competent jurisdiction—to the Supreme Court, if possible. If satisfied that conditions were such that public interests warranted and demanded it, this court should have authority to compel the city to make necessary improvements, within a reasonable time. It would seem not unreasonable or impracticable, where cities had already reached their permissible expenditures, to the neglect of their water supply, that the State should lend them its credit, with ample security, and the control, for a time, of their receipts and expenditures, if necessary.

We would respectfully recommend to the Governor and the next General Assembly, that this general idea receive consideration.

Another matter relating to this subject of public water supplies

is worth attention. A number of our cities are introducing water purification works.

Batavia, Conneaut, Dennison-Uhrichsville, Elyria, Geneva, Newark, Oberlin, Pomeroy-Middleport, Vermilion, Warren, Marietta and Upper Sandusky have plants in operation. Youngstown has one under construction; Columbus and Toledo have had plans for such works approved by the State Board of Health; and Cincinnati, Fostoria and Bucyrus are preparing plans for such works.

With but few exceptions the surface waters of the State are unsuited for a public supply. In many regions the ground water is inadequate for a city of much size. The purification of surface waters must receive more and more attention. A filtration plant must be properly constructed and efficiently operated to afford a safe water supply.

It is the history of these plants that they are not infrequently neglected, and a clear water, unfortunately, does not necessarily mean a pure water, so that the public cannot judge the efficiency of the public filter. Frequently bacteriological and chemical examinations are necessary to determine this point. Large cities can provide laboratories for this work, but the smaller ones can hardly afford it.

The State Board of Health has examined from time to time the various public filters in use, and has reported to the local authorities where the results of filtration were not as good as they should have been. It is exceedingly desirable that much more frequent examinations should be made by the Board, but this will require larger appropriations and increased laboratory facilities. The Board should, it would seem, have authority to require changes in construction or in operation of existing filter plants whenever found necessary to secure proper results in purification.

The Board has recently entered into an arrangement with the United States Geological Survey to conjointly study the effect of trade refuse in the contamination of streams, and of methods for properly caring for such substances. An agent of the United States Government will be kept in the field, while necessary analytical work will be done in the laboratory of the State Board of Health. It is hoped that results will be obtained that will be helpful in further efforts to protect the purity of our water supplies.

The following cities and villages presented plans to the Board for approval during the year:

New Water Supplies. Barnesville, Columbus, Covington, Elyria, Franklin, Miamisburg, New London, Newark, Vermilion, Waynesburg and Zanesville.

Additional Water Supplies. Alliance, Dalton, Fostoria, Lisbon and Plain City.

Purification of Present Supply. Marietta and Youngstown.

New Sewerage Systems. Batavia, Beach Park, Bryan, Bluffton, Chillicothe, Delphos, Elyria, Fairport, Fremont, Hamilton, Lancaster, Linwood, Lockland, London, Lorain, Mt. Sterling, Newton Falls, Newark, Painesville, Perrysburg, Sebring, Shreve, Lorain (Sheffield Land and Improvement Company), Springfield, Toledo (District No. 36), Uhrichsville, Uhrichsville (Private Hospital), West Carrollton, Willoughby, Youngstown and Zanesville.

Sewage Disposal Works. Bulah Park, Bluffton, Jackson, Lockland, London, Marion, Morgan's (Ohio Institution for Feeble Minded Youth), Mt. Sterling, Newark, North Amherst (Ohio Quarries Company), Sebring, Shreve, Springfield and Toledo (District No. 36).

THE LABORATORY.

A report of the work done in the Laboratory during the year can be found further on. Attention is called to an extension of its work, which, it is hoped, will assist the medical profession and local authorities in suppressing contagious and infectious diseases.

The following circular letter, which was sent to all physicians in the State outside of cities having a municipal laboratory, will explain the object of the Board in this direction:

OHIO STATE BOARD OF HEALTH.

OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, December 15, 1904.

DEAR DOCTOR:—To aid physicians in making a diagnosis in suspected or doubtful cases of certain of the infectious diseases, and thereby to enable the health authorities to better control them, the State Board of Health has decided to offer to make examinations free of charge, upon the request of any physician, of specimens from suspected cases of Pulmonary Tuberculosis, Diphtheria and Typhoid Fever. The only exception to this is that this offer will not apply to physicians who live in cities where the local Board of Health is maintaining a laboratory for such examinations.

That such examinations may be of much value to the attending physician, it is necessary to have prompt reports of the findings. Under the rules of the Postoffice Department it is unlawful to send such specimens by mail except in special containers approved by that Department. To obviate the delay entailed by sending to the Laboratory in Columbus for such containers or mailing outfits, we have arranged to place a supply with a reliable druggist in each county seat, who will send one or more to any physician in his county upon request.

As the druggists have kindly consented to render this service without compensation, the physician will be expected to pay all postage. The weight of mailing cases will require the following postage rates:

For sputum in suspected tuberculosis, 10 cents.

For a swab for suspected diphtheria, 4 cents.

For foil and outfit for blood examination in suspected typhoid fever, 2 cents.

The mailing cases will be sent by druggists to physicians tied up in ordinary wrapping paper. The cases themselves will have the printed address of the Laboratory pasted upon them, and will require no additional address. Each case will contain printed directions for collecting specimens, and a blank for a report of the case under examination. This blank must be properly filled out by the physician and enclosed in the case in order to identify the sample. The same rates of postage will be required in sending specimens to the Laboratory as were given above for receiving mailing cases from the druggist. This postage is to be paid by the physician who sends the specimen.

Ordinarily the time required to examine a specimen of sputum, diphtheria swab or blood film for suspected typhoid fever, will be but a few hours from the time it is delivered to the Laboratory. Exceptional cases will take longer. As our Laboratory force is not large, and is engaged in various other kinds of work, there may be occasional delays, but **each** case will be reported upon as promptly as possible.

Specimens should not be mailed, if avoidable, so that they will arrive in Columbus Saturday afternoon or night, or Sunday morning, for they cannot be examined before Monday morning. It is very desirable that specimens be received as soon after collection as possible, and this should be considered in sending them.

The results of an examination will be sent to the physician by mail unless request is made upon the information blank to send results by telegram. A telegram must be paid for by the physician who requests the examination.

In case of diphtheria a report will be sent to the attending physician, and a duplicate report will be sent to the health authorities having jurisdiction where the patient resides.

In this connection the following advice is given: In suspected cases of diphtheria the patient and all children in the house, should be kept in until the results of the examination are made known. If the bacteriological examination is negative, but the clinical symptoms still indicate diphtheria at the time such report is received, the case should be considered as diphtheria and quarantined as such. In all such cases a second examination will be made if requested. On the other hand, if in any cases in which the Klebs-Löffler bacillus is found the clinical symptoms are doubtful or absent, it is better to give the public the benefit of the doubt and enforce proper preventive measures. This would be especially true when cases of diphtheria were present in the neighborhood.

An account will be kept with each druggist of the outfits sent to him, and by him to physicians, and physicians receiving them will be expected to return them to the Laboratory. It is not expected that physicians will order mailing outfits except when they have cases to be examined. It would be impossible, in other words, for us to furnish supplies to each of the ten thousand physicians in Ohio.

Where there is good reason to suspect as well as the cause of typhoid fever, an examination will be made of a sample of the water, but only at the request of the local health authority. Such examinations are free except the expressage for returning samples.

No sample will be examined except those sent in our own bottles. Bottles in locked boxes will be furnished at the request of the local health authority, with instructions for collecting samples. The examinations made in such cases are both chemical and bacteriological. The latter will simply determine the number of bacteria present, and the absence or presence of colon bacilli.

Hoping that this extension of the services of the Laboratory may meet with the approval of, and be of service to, the medical profession and the public, I have the honor to be,

Very respectfully,

C. O. PROBST, M. D.,
Secretary.

By order of the Board.

Physicians at once began to avail themselves of this offer, and it seems likely that this work will prove to be very useful.

TUBERCULOSIS.

The Board has taken an active part in the movement now becoming so widespread, for the suppression of tuberculosis. It was instrumental in securing the passage of an act for a State Sanatorium for the treatment of tuberculosis, which now seems to be fully assured. It has helped in the organization of local societies for waging war against this disease. Such societies have been formed in Cleveland, Columbus, Cincinnati and Youngstown, and in Cincinnati and Cleveland municipal hospitals for tuberculosis are being operated with increasing success.

A large amount of printed matter of an educational character relating to tuberculosis has been distributed during the year.

Detailed reports of the various operations of the Board may be found under appropriate headings.

MINUTES OF BOARD MEETINGS.

SECRETARY'S QUARTERLY REPORTS.

JANUARY MEETING.

The State Board of Health met in regular session at the office of the Board, in Columbus, at 8 p. m., January 20th, 1904.

All members were present except Mr. Hartzell.

Dr. Miller presided.

The minutes of the last meeting were read and approved.

Dr. J. U. Barnhill, of Columbus, addressed the Board on the subject of some changes in the law to give local boards of health authority to control sources of pollution of public water supplies.

In reference to the possibility of the pollution of Columbus water supply by sewage from the Girls' Industrial Home, referred to in the secretary's report, it was moved by Dr. Chapman, and duly seconded, that the Legislature be urged to provide for sewage purification at this institution.

Mr. C. Arthur Brown, the chemist and bacteriologist for the city of Lorain, reported to the Board results obtained there in water filtration with sulphate of iron as a coagulant. He asked the Board to give formal approval of the use of this coagulant.

The matter was referred to executive session.

The mayor, board of public service, city engineer, city solicitor and two members of council of the city of Columbus, appeared before the Board and asked its approval of plans for a storage dam, with the agreement that the question would be submitted to the people at the first election to issue bonds for putting in filtration works satisfactory to the Board.

On motion of Dr. Stanton, the Columbus water supply question was made a special order for the following day at 4 p. m.

Mr. Gessner, representing The Riggs & Sherman Company, engineers, presented plans for sewage disposal for the village of Jackson and plans for a sewerage system and sewage disposal for Lockland.

These were referred to executive session.

The secretary then presented his quarterly report, which was approved and ordered filed for printing.

The Board then went into executive session.

Matters previously acted upon by mail vote were taken up for confirmation.

It was moved by Dr. Chapman, and seconded by Dr. Palmer, that an additional water supply for the village of Cadiz, to be obtained from a drilled well located some four thousand three hundred and fifty feet south of the present pumping station, as shown on the map furnished, be approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Stanton, that the plans for a mechanical filtration plant for the city of Elyria be approved subject to the following conditions:

1st. That the city employ a competent bacteriologist during the first two months the plant is in operation to make daily analyses and to instruct those in charge in regard to the proper amount of coagulant to be used under various conditions of the raw water.

2d. That the State Board of Health reserve the right to require higher standards of efficiency if considered practicable in the future.

3d. That any change in the method of operation or use of coagulant, deemed necessary by the Board shall be made when desired.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Dr. Stanton, that a public water supply for the village of Jacksonville, to be obtained from an abandoned coal mine, known as Mine No. 4, of the Continental Coal Company, be approved upon the condition that subsequent examinations show it to maintain its present purity.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Chapman, that an additional water supply for the village of Liepsic, to be obtained from an abandoned oil well located some 500 feet or more from the well now furnishing the water for the village, be approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Warner, that a water supply for the village of Murray, to be obtained from a driven well 82 feet deep located not far from their present ball grounds, be approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Palmer, that a water supply for the village of Vermilion, to be obtained from the Vermilion River and to be purified by mechanical filtration, be approved upon the conditions:

1st. That the plant shall be subject to such future requirements

as regards its operation as may be found necessary by the State Board of Health, and

2d. That the Board does not formally approve of sulphate of iron as a coagulant, though permission is given to temporarily make use of it for such purpose.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Crossland, that a water supply for the village of West Manchester, to be obtained from a well located near the southern boundary of the corporation, on a lot 130 feet square and 500 feet north of the railroad station just west of the C. & N. tracks, be approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Stanton, that the plans for sewers in Eastern, Linwood, Beachmont, Wilmer, Rosedale and Elmer Avenues and Harris and Greist Streets, in Linwood, now a part of Cincinnati and situated in the Little Miami Valley, be approved upon the condition that no connection for house drainage, water closets or vaults, shall be permitted without the consent of the State Board of Health, and that said approval shall take effect upon the receipt by said Board of a written agreement of the board of public service that no permit shall be granted for house connections contrary to said condition.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

Dr. Stanton, to whom had been referred a request from the city engineer that the above condition be modified to read that no connection for house drainage, water closets or vaults be permitted, reported in favor of sustaining the Board's action in this case and, on motion of Dr. Chapman, it was so voted.

It was moved by Dr. Chapman and seconded by Dr. Crossland, that the plans for sewers for districts No 26 and No. 27 in the city of Toledo, with outlets into Ten Mile Creek or the Ottawa River, be approved upon the condition that if in the opinion of the State Board of Health the outlets of said sewers become a menace to the health of the community a purification plant shall be installed; and that the plans for District No. 39 of the city of Toledo, with an outlet about 2 miles below the water works intake, be approved upon the condition that if future examinations of the water near the outlet, made by the State Board of Health, show dangerous pollution, a purification plant shall be at once installed.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Stanton, that the plans of Messrs. Snow & Barbour, consulting engineers, for a system of sewerage and sewage disposal for the village of Wadsworth be approved upon the following condition, viz: that additions shall be made to the sewage disposal plant whenever it may be deemed necessary, and that such additions shall include as much filtering material as the Board may require.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Chapman, that the plans for a system of sewers for the city of Springfield be acted upon as follows:

That the State Street sewer, with an outlet into Buck Creek, be approved provided it be used for storm water purposes only, and that a sanitary sewer be constructed at the same time for this district, with a temporary outlet into Buck Creek.

That the Clifton and East Street sewer, with an outlet into Mill Run, and the Lagonda Avenue sewer, to discharge into the dry bed of Buck Creek, be disapproved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Dr. Chapman, that the plans for a system of sewerage for the village of Scio be acted upon as follows:

That the Board approve the construction of the College Street sewer and its discharge into the creek until such time as in the opinion of the Board some other disposition should be made of the sewage.

That the Board disapprove of the construction of any other part of the sewerage system, unless sewage disposal works are introduced at the same time, and further that the site chosen for the septic tanks be disapproved as being too near the village.

That the Board advise that further investigation be made to see whether land suitable for the intermittent filtration of the sewage is not available, as there appears to be a considerable quantity of sand suitable for filtration in the neighborhood; and,

That a sewage purification plant be introduced when in the opinion of the Board this becomes necessary.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Chapman, that the Board should not change its former action disapproving the discharge of sewage from District No. 2 of the city of Kenton into the river without purification.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Dr. Warner, that the village health officers, appointed in lieu of a board of health, as presented by the secretary be approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Palmer, that Mr. Henry Selders be appointed health officer of the village of Lodi, council having failed to appoint a health officer or board of health and the mayor having requested that Mr. Selders be appointed.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Palmer, that Dr. J. W. Hurlburt be appointed health officer of Uniopolis for two years, at a salary of \$150.00 per year; the local authorities having failed to take action to establish a board of health or appoint a health officer.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Miller that the rules adopted by the health officers of the following villages be approved: Bowersville, Freeport, Lockland and Winchester.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

On motion of Dr. Warner, it was voted to extend the time during which permission would be given the city of Lorain to use sulphate of iron in water filtration.

The Board then adjourned to meet the following day after the session of the joint meeting of State and local boards of health.

SECOND SESSION.

January 21st, 1904.

The Board reassembled at 5 p. m. on the 21st. The members were present as before.

The special order—Columbus water supply—was taken up and on motion of Dr. Warner, and seconded by Dr. Stanton, it was voted to approve the plans submitted upon the following conditions:

1. That the ground to be flooded by water by the proposed dam shall be cleaned (a) by removal of all trees and stumps and their branches and roots of one inch or more in diameter, (b) by the destruction of vegetation as far as possible by burning over the area, and (c) by the removal of at least one foot in thickness of the soil upon which houses, barns, hog-pens, or other sources of pollution are, or have recently been located.

2. That plans for filtration works be presented to the Board for approval before the completion of the dam.

3. That the question of issuing bonds for the construction of necessary filtration works be submitted to a vote of the people during the year 1904.

4. That the Board reaffirm its opinion that the stored water of the Scioto River should not be used without purification.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

Plans for sewerage and sewage disposal for Jackson were discussed, and on motion of Dr. Chapman it was voted to return them to the engineer with the suggestion that certain changes be made in the plans.

On motion of Dr. Chapman, seconded by Dr. Stanton, it was voted to approve the plans for sewers for Lockland with the discharge from a septic tank directly into Mill Creek until such time as sewage purification be required.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Stanton and Miller.

In the negative, none.

The plans for sewerage for Sebring were discussed and, on motion of Dr. Stanton, were referred to the engineer for further investigation and report.

On motion of Dr. Chapman, and seconded by Dr. Warner, it was voted to authorize the secretary to secure legal assistance if necessary in the preparation of a manual of health laws.

A communication in reference to the danger from gas stoves without chimneys was presented and ordered filed.

The Board voted to approve a bill before Congress, providing for a "Post Check System" as a means of securing clean money.

The secretary presented a communication from Dr. Allport of Chicago, in reference to a plan for testing the vision and hearing of school children.

On motion of Dr. Warner, the Board voted to endorse the plan.

The secretary presented plans for a sewer in Reeder Street, Liston Avenue, Portland Avenue and the right of way, in Riverside, Cincinnati.

On motion of Dr. Stanton, and seconded by Dr. Chapman, it was voted to approve these plans.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Stanton, Crossland and Miller.

In the negative, none.

The secretary presented the names of health officers who had been appointed by council, in lieu of a board of health, and stated that they had all been vouched for by five property holders of their respective villages.

These were approved.

There being no further business, the Board adjourned.

Attest:

C. O. PROEST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

January Meeting, 1904.

Mr. President and Members of the Ohio State Board of Health,

GENTLEMEN:—Your secretary respectfully presents the following report of work done since the last meeting, October 14th and 15th, 1903.

The total number of smallpox cases reported from October 11th to January 16th, 1904, was 1,604, with 34 deaths. On the latter date the disease was reported present in 47 places and 29 counties.

Since the last meeting investigations of suspected smallpox have been made by the secretary or a member of the Board at the following places: Cambridge, Washington Township, Muskingum County; Mt. Vernon; New Concord and Columbus.

The medical inspectors have visited the following places on account of smallpox: Springfield Township, Jefferson County; German Township, Harrison County; Coshocton, Zanesville, Truro Township, Franklin County; Leesburg Township, Jackson Township and Taylor Township, Union County; Washingtonville, Liberty Township, Fairfield County; Upper Sandusky, Larue, Marysville, Prospect, Champion Township, Trumbull County; Apple Creek, Ward Township, Hocking County; Glenmont, Toronto, Washington Township, Muskingum County; Green Township, Harrison County; Buchtel, Mifflin Township, Wyandot County and Genoa.

In all but nine places the authorities bore the expenses of the inspector.

In addition to these investigations of smallpox, Dr. Banker visited Springfield Township, Jefferson County, on account of diphtheria; and Mr. Horton visited Tiffin on account of the pollution of the Sandusky River by refuse from the strawboard works.

The engineer made the following inspections: Glenville, on account of sewage disposal; Collinwood, sewage disposal; Oberlin, sewage disposal; Warren County Infirmary, sewage disposal; Massillon, sewage disposal; Canton, sewage disposal; Wooster, sewage disposal; Springfield, sewerage; Clyde, sewage disposal; Sandusky, sewage disposal at the Ohio Soldiers' and Sailors' Home; Toledo, sewage disposal at the State Hospital; Fostoria, sewage disposal; Johnstown, water supply; Vermilion, water supply; Wadsworth, sewerage; Shelby, sewage disposal; Mansfield, sewage disposal; Alliance, sewage disposal, and Jacksonville, water supply.

Questions acted upon by the Board by mail should now be confirmed.

Respectfully submitted,

C. O. PROBST,

Secretary.

APRIL MEETING.

The State Board of Health met in regular session at the office of the Board, in Columbus, at 8 p. m., April 27th, 1904.

All members were present except Dr. Stanton.

Dr. Miller presided.

The minutes of the January meeting were read and approved.

Mr. F. L. Damon, president of the board of public service of Kenton, and a member of the council, appeared before the Board and asked permission to discharge sewage from District No 2 of that city into the Scioto River without purification.

Mr. J. P. Force, as consulting engineer, presented plans for sewerage and sewage disposal for London and Mt. Sterling.

Mr. F. M. Lillie, city engineer of Youngstown, presented plans for a water purification plant for that city.

Mr. J. C. Ward, of Painesville, as consulting engineer, presented plans for sewers for the villages of Fairport and Willoughby.

Mr. F. G. Jacobs, a member of the board of trustees of public affairs of Miamisburg, appeared before the Board and asked its approval of the location of wells for a public water supply for that village.

These questions were referred to executive session.

The engineer of the Board presented reports upon sewerage for Shreve, Painesville and Batavia, and a report of an investigation of the pollution of the public water supply of Portsmouth, made at the request of the local board of health of that city.

The Board then went into executive session.

The secretary read his quarterly report, which was approved and ordered filed.

Matters previously acted upon by mail vote were taken up as follows:

It was moved by Mr. Hartzell, and seconded by Dr. Crossland, to confirm the action approving plans for a storm water sewer at West Carrollton, with outlet into the Great Miami, with the provision that no domestic sewage be discharged into the sewer without the permission of the State Board of Health.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Chapman, to confirm the vote approving plans for sewage disposal for Bulah Park, a camp-meeting ground near Collinwood, upon the condition that if the proposed subsoil method of disposing of the effluent from the

filters proves unsatisfactory, an outlet into the lake be constructed at a point and in such a manner that no nuisance will be caused to bathers in case partially purified sewage is discharged.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Warner, to confirm the vote granting the village of Vermilion permission to change the source of her water supply from the Vermilion River to Lake Erie, the plans providing for the collecting of water from the gravel beneath the bottom of the lake, upon the condition that the proposed supply or collecting basin be constructed of such a form that it may be enlarged and used as a sedimentation basin holding not less than 160,000 gallons, if it is found that the use of water direct from the lake is necessary.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Crossland, to confirm the vote approving the plans for sewerage and sewage disposal for the village of Sebring upon the following conditions:

1st. That specially prepared "sludge beds" be used to receive the accumulated sludge from the bottom of the tank, instead of pumping this sludge upon land where a sudden rain might wash it into the creek.

2d. That additional filter beds of size and material satisfactory to the State Board of Health, be constructed when the population using the sewers materially increases.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Chapman, to confirm the vote approving the plans for sewage disposal for Jackson with the proviso that the size of the filtering material be made known to the Board and be to its satisfaction, prior to putting the filters into use.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Palmer, to confirm the vote approving the plans for sewerage and sewage disposal for District No. 36 of the city of Toledo, upon the condition that as the population using the sewers becomes greater the disposal plant be enlarged to such size and in such manner as the Board may deem necessary.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Crossland, to confirm the vote approving a water supply for the village of Waynesburg, to be obtained from drilled wells located near Big Sandy Creek, 500 feet north of the edge of the village and separated from the village by the valley of a small run.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Crossland, to confirm the vote disapproving the quarantine notice adopted by the health officer of Nevada, quarantining against Bucyrus on account of smallpox.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Crossland, to confirm the votes approving health officers appointed by council in lieu of a board of health.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Warner, to confirm the vote approving the rules of the health officer of Mt. Sterling, and those of the health officer of West Alexandria.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Chapman, to confirm the vote granting permission to Mr. Lafe Fulton of Aberdeen, Brown County, to disinter the remains of his wife, who died of smallpox, provided it be done under the direction of the health officer, Dr. S. A. Laughlin, and in accordance with rules, the consent of the township authorities having jurisdiction where the body was to be reinterred having been obtained.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

Plans for sewerage and sewage disposal were taken up for consideration.

It was moved by Dr. Palmer, and seconded by Dr. Warner, that the plans for sewerage and sewage disposal for the village of Shreve be approved upon the condition that as the size of the village increases

the area of the filtering material must be increased according to plans satisfactory to the State Board of Health.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Chapman, that the plans for a sewer for a portion of Painesville, with an outlet into the Grand River at the foot of Erie Street, be approved upon the condition that no domestic sewage except that from the sanitary sewer in Liberty Street south of Erie Street and from houses on Erie Street east of Elm Street, be admitted to this sewer without first obtaining the approval of the State Board of Health.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Warner, to approve the plans for a sewer at Batavia, to discharge into the river a short distance west of the foot of Main Street, upon the condition that the sewer be used for cellar and bathtub drainage only.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

On motion of Dr. Chapman it was voted that the Board was of the opinion that the sewage from the Norfolk and Western Railroad shops was a menace to the water supply of Portsmouth. The secretary was instructed to convey this opinion to the board of health of Portsmouth, and to call their attention to a recent amendment to Section 2433 R. S., giving the board of public service authority to prevent such pollution within twenty miles from the corporate limits of any city.

The secretary presented a communication from Mr. V. G. Drayor, of Dayton, Ohio, and from the Governor of Tennessee, relative to securing the Board's permission to bring to Dayton, Ohio, the body of Mr. Drayor's son, death having occurred in Tennessee from small-pox.

On motion of Dr. Warner, seconded by Mr. Hartzell, it was voted to accord such permission provided the consent of the board of health of Dayton be first obtained, and that the body be brought from Tennessee in such manner as should be determined by the secretary of the State Board of Health and the health officer of Dayton.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

The secretary presented correspondence in reference to the un-

sanitary conditions existing at Put-in-Bay, and read a letter from the mayor, Mr. J. C. Oldt, in which it was stated that from lack of funds it was impossible for council to construct necessary sewers without submitting the question to a vote of the people, who would undoubtedly vote unfavorably to such a proposition.

On motion of Dr. Warner, a committee of two, consisting of Dr. Chapman and Mr. Hartzell, was appointed to visit Put-in-Bay and do everything possible to secure a betterment of sanitary conditions there.

The secretary presented a communication, inclosing a petition signed by one hundred and twenty-two citizens of Cedarville, claiming that the strawboard works at that place was the cause of a nuisance and requesting the State Board of Health to make an investigation.

On motion of Dr. Chapman, a committee consisting of Drs. Warner and Stanton was appointed to investigate and report.

The secretary presented a communication from the village solicitor of Ada, and a petition from the board of health of that place, praying that they be given authority to abolish all cess-pools in the village and be permitted to discharge raw sewage into Hog Creek. He also presented a report made by the former engineer, the late Mr. Flynn, in 1902 upon the conditions at Ada, in which it was recommended that raw sewage should not be permitted to be turned into Hog Creek.

On motion of Dr. Chapman, and seconded by Dr. Palmer, it was voted to reaffirm the Board's former action disapproving the turning of raw sewage into Hog Creek.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

The rules and regulations adopted by the health officers of Attica, Tontogany and Rockport were submitted to the Board for approval. These were referred to a committee consisting of Dr. Warner and the secretary, with power to act.

It was moved by Dr. Crossland, and seconded by Dr. Warner, to approve the plans for sewerage and sewage disposal for the village of London, as presented by Mr. J. P. Force, the consulting engineer.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Warner, that the plans presented by Mr. J. P. Force, as consulting engineer, for sewers and sewage disposal works for the village of Mt. Sterling be approved with the proviso that the sewage disposal works be installed at the same time the sewers are built.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Chapman, that the plans presented by Mr. F. M. Lillie, city engineer of Youngstown, for a gravity filtration plant for that city, for the purification of water to be obtained from the Mahoning River near the present pumping station be approved subject to the following conditions:

1st. That any change made in the plans presented be submitted to and approved by the State Board of Health prior to the construction of the filters.

2d. That the purification plant shall show during a reasonable trial period a bacterial efficiency not less than that called for on pages 3 and 4 of the copy of specifications filed with the plans.

3d. That a chemical and bacteriological laboratory be made a part of the plant, and the filtered water be properly examined daily so long as the Mahoning River is made use of as a public water supply for the city.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Warner, that the plans presented by Mr. J. C. Ward, the consulting engineer, for a system of sewerage for the village of Fairport, with outlet into the Grand River, be approved upon the condition that purification works be installed whenever this may be required by the State Board of Health.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

On motion of Dr. Palmer, and seconded by Dr. Crossland, it was voted to approve the location of wells for a public water supply for Miamisburg, as presented by Mr. F. G. Jacobs, a trustee of public affairs, provided that analyses, after a test well has been sunk and pumped a sufficient length of time, prove satisfactory.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

On motion of Dr. Chapman, and seconded by Dr. Warner, the plans prepared by Mr. J. C. Ward, the consulting engineer, for a sewerage system for the village of Willoughby, with outlet into the Chagrin River at a point about a mile below the edge of the built-up portion of the village, were approved upon the conditions:

1st. That the outlet pipe be so located and constructed that no nuisance will be caused to those living nearest to it; and

2d. That purification works, satisfactory to the State Board of Health, be installed when deemed necessary by said Board.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

On motion of Dr. Warner, seconded by Dr. Palmer, it was voted to reaffirm the Board's action disapproving plans for sewerage for District No. 2 of the city of Kenton; and to express the Board's willingness to approve the sewer to carry to the river the waste from the Kenton Hardware Manufacturing Company's factory provided nothing else is permitted to enter the sewer.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

Dr. Chapman stated that the village of Perrysburg was about to construct new sewers, but discharge them into the Maumee River through an old outlet, thus attempting to evade the law requiring their plans to be approved by the State Board of Health.

On motion of Dr. Warner, the secretary was instructed to refer this matter to the Attorney-General, as to the powers of the Board in such cases.

The secretary presented the names of six health officers, who had been appointed by council in lieu of a board of health.

On motion of Dr. Palmer, and seconded by Dr. Crossland, these health officers were approved.

Those voting in the affirmative were Messrs. Chapman, Warner, Palmer, Crossland, Hartzell and Miller.

In the negative, none.

There being no further business, the Board adjourned.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

April Meeting, 1904.

Mr. President and Members of the Ohio State Board of Health:

GENTLEMEN:—Your secretary begs leave to submit the following report of the work of the Board since the last meeting, January 20th, 1904.

The smallpox situation has somewhat improved. For the week ending April 23d there were 92 cases reported. Since January 1st to April 23d, there were 1,844 cases and 52 deaths reported. Difficulties are still being encountered here and there in enforcing quarantine on account of disputes in diagnosis. Dr. Crossland made several visits to Perry County because of the lax methods of the local authorities in dealing with smallpox.

The places visited by medical inspectors on account of smallpox were Marion Township, Marion County; Piqua, Salesville, Harrison Township, Licking County; West Alexandria, Zaleski, Baltimore, Osnaburg, German Township, Allen County; Newcomerstown (twice), Mechanicsburg, Laurelville, South Bloomfield, Rendville, Linton Township, Coshocton County; Apple Creek, Canal Dover, Marseilles Township, Wyandot County; Powhatan Point, Franklin Township, Coshocton County; Goodhope Township, Hocking County (twice) and Glenmont.

In one instance, West Alexandria, the disease proved to be chickenpox. In all but two places the local authorities bore the expense of the inspection.

Dr. Moninger also visited Gahanna on account of an outbreak of measles.

The engineer made the following inspections: Lima, water supply; Bulah Park, sewage disposal; Painesville, sewerage; Toledo, sewage disposal for District No. 36; Miamisburg, water supply; Shreve, sewerage; Fairport, sewerage; Willoughby, sewerage; Sebring, sewerage and sewage disposal; Westerville, sewage disposal, and Portsmouth on account of the pollution of the water supply.

On February 16th, the secretary, at the request of the committee on sewerage of the council of Marion, visited that city and took part in a conference to consider methods of sewage purification.

On March 28th the Secretary attended a meeting in Philadelphia, called to organize a National Society for the Study of Tuberculosis.

Dr. Osler presided. There were about fifty present, most of whom are well known for their work in the study and prevention of tuberculosis. A committee, of which Dr. Trudeau was made chairman, was named, to formulate a plan for a permanent organization. It is expected that the committee will report and the organization be perfected some time during the meeting in June of the American Medical Association at Atlantic City.

Since the last meeting Columbus has suffered from a severe epidemic of typhoid fever. Most of the cases occurred in February and March. About 1,500 cases and 166 deaths are charged to this epidemic. The exact cause of the epidemic is not known, except that pollution of the water from the West Side pumping station in some way occurred. Overflow sewage from the State Hospital for Insane was generally held responsible for this pollution; but there was pollution of the supply from other nearby sources.

The epidemic brought about a law giving municipalities jurisdiction over sources of pollution for twenty miles from their boundaries. (Section 2433, R. S.).

The effort to secure purification of the sewage from the Girl's Industrial School at Delaware, a known source of pollution, was not successful.

The following additional measures bearing upon the public health were enacted:

1. An act to establish a State sanatorium for tuberculosis.
2. An act amending Section 6919, in regard to the abatement of nuisances. This gives the court authority, where a nuisance has once been passed upon by the court and is of a recurring character, to issue an order to the sheriff to execute the order of abatement at the cost and expense of the defendant, without going through the formality of securing another indictment and again trying the case.
3. An act amending Section 187 of the Municipal Code. This gives council authority to transfer the work of the board of health to the board of public service in cities. It is optional and not mandatory.
4. An act to amend Section 1536-741, providing that where a contagious disease occurs in a county institution the entire expense must be borne by the county. This was brought about by a case in Montgomery County where a township was practically bankrupted in quarantining the county infirmary, the expense of quarantine having to be borne by the township.

A bill to create a system of registration of births and deaths was introduced in the Senate, but was never reported back by the committee to which it was referred.

A bill to amend Section 1536-723 and Section 1536-727, requiring that the health officer be a physician, met the same fate.

An appropriation of \$40,000 was made for the general expenses of the Board for two years, a gain of \$6,000 over previous years.

Questions voted upon by mail should now be confirmed.

Respectfully submitted,

C. O. PROBST,
Secretary.

JUNE MEETING.

A regular meeting of the State Board of Health was held at the Hollenden Hotel, Cleveland, at 8 p. m., June 22d, 1904.

All members were present except Dr. Miller.

Dr. Warner presided.

The minutes of the April meeting were read and approved.

Mr. Sherman, of the firm of The Riggs and Sherman Company, engineers, presented plans for a sewer for the village of Perrysburg. He also made an informal explanation of plans under way for sewerage for the city of Elyria.

Mr. John P. Lamb, president of the board of public service of the city of Newark, and Mr. L. E. Chapin, the consulting engineer, presented plans for a new water supply for that city.

Mr. Chapin also asked the Board's approval of certain modifications in the plans already approved for a water supply for Vermilion.

These matters were referred to executive session.

The secretary then read his quarterly report, which was approved and ordered filed for publication.

Dr. Chapman presented a letter from the clerk of the council of the city of Toledo, asking that attention be given a communication from Mr. Noah H. Swayne, of that city, relative to securing an examination of waters from all the artesian wells in Toledo.

On motion of Dr. Stanton, the matter was referred to the secretary to arrange for the examination of such number of the artesian wells in Toledo as he might deem best.

Dr. Stanton presented a communication from the Mill Creek Sanitary Association in reference to the building of a county main or trunk sewer to relieve the pollution of Mill Creek.

Dr. Stanton then presented the following resolution and moved its adoption:

WHEREAS, the State Board of Health, upon investigation, has found Mill Creek in Hamilton County to be grossly polluted by sewage, various trade wastes and refuse from dairies, and

WHEREAS, Such pollution is largely derived from some eighteen or more different cities and villages and from municipal, county, and state institutions located in said Hamilton County,

Be it resolved by the State Board of Health, That said Board finds and does now declare that a trunk or main sewer is necessary for sanitary purposes for the said county of Hamilton, State of Ohio, and the county commissioners of said county are hereby respectfully requested and urged to cause to be made plans and specifications for and to construct and maintain a county trunk or main sewer for the purposes before mentioned, in accordance with the provisions of an act entitled "An act providing for the construction and maintenance of main or trunk sewers by the county commissioners, when the State Board of Health finds said trunk or main sewer to be necessary and have approved the plans and specifications thereof," passed April 28th, 1904.

The motion was seconded by Mr. Hartzell and carried.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

On the recommendation of the secretary it was voted to take up an investigation of all the municipal water filters in the state.

The Secretary presented a report upon an outbreak of typhoid fever at Ashtabula, traceable to the pollution of the public water supply.

On motion of Dr. Chapman, the Secretary was instructed to send a communication to the city council and to the board of health of Ashtabula, urging the installation of a water purification plant at the earliest possible time as a means of preventing epidemic outbreaks of typhoid fever.

The secretary presented a plan and request from the trustees of the Methodist Episcopal Church, at Newton Falls, to connect the water-closets of their new church with a storm water drain which is already built and which discharges into the east branch of the Mahoning River. It was also stated that several residents wished to use this drain as a domestic sewer.

It was moved by Dr. Palmer, and seconded by Dr. Stanton, to disapprove the use of this drain for domestic purposes on account of its close proximity to the water supply of Warren.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

Dr. Warner and the secretary, as a committee appointed to investigate the sanitary condition of the Ohio Penitentiary, made a report of progress.

On motion of Dr. Stanton, it was voted to receive the report and continue the committee.

Dr. Stanton moved that a committee of one, and the engineer of the Board, be appointed to investigate the sanitary condition of Lakeside.

The chair appointed Dr. Stanton as a member of this committee.

On motion of Dr. Chapman, it was voted to add the president elect and secretary to the committee.

The Secretary presented the following amendments to the rules and regulations governing the transportation of dead bodies:

RULES AND REGULATIONS OF THE OHIO STATE BOARD OF HEALTH GOVERNING THE TRANSPORTATION OF DEAD BODIES.

RULE 1. The transportation of bodies dead of smallpox, or bubonic plague, from one state, territory, district or province to another, is absolutely prohibited.

RULE 2. The transportation of bodies dead of Asiatic cholera, yellow fever, typhoid fever, diphtheria (membranous croup), scarlet fever (scarlatina, scarlet rash), erysipelas, glanders, puerperal fever, anthrax or leprosy, shall not be accepted for transportation unless prepared for shipment by being thoroughly disinfected by (a) arterial and cavity injection with an approved disinfecting fluid; (b) disinfection and stopping of all orifices with absorbent cotton, and (c) washing the body with the disinfectant, all of which must be done by an embalmer holding a certificate as such, issued by the State or provincial board of health, or other State or provincial authority provided for by law.

After being disinfected as above, such body shall be enveloped in a layer of dry cotton, not less than one inch thick, completely wrapped in a sheet securely fastened, and encased in an air-tight zinc, tin, copper, or lead-lined coffin or iron casket, all joints and seams hermetically sealed, and all enclosed in a strong, tight wooden box. Or the body being prepared for shipment by disinfecting and wrapping as above, may be placed in a strong coffin or casket, and said coffin or casket encased in an air-tight zinc, copper, or tin-lined box, all joints and seams hermetically soldered.

RULE 3. The bodies of those dead from any cause not stated in Rule 2 may be received for transportation when encased in a sound coffin or casket and enclosed in a strong outside wooden box, provided they can reach their destination within thirty hours from the time of death. If the body cannot reach its destination within thirty hours from the time of death, it must be prepared for shipment by arterial and cavity injection with an approved disinfecting fluid, washing the exterior of the body with the same, and enveloping the entire body with a layer of dry cotton not less than one inch thick, and all wrapped in a sheet securely fastened, and encased in an air-tight metallic coffin or casket, or an air-tight metal-lined box. But when the body has been prepared for shipment by being thoroughly disinfected by a licensed embalmer, as defined and directed in Rule 2, the air-tight sealing and bandaging with cotton may be dispensed with.

RULE 4. In the shipment of bodies dead from any disease named in Rule 2, such body must not be accompanied by persons or articles which have been exposed to the infection of the disease, unless certified by the health officer as having been properly disinfected.

Before selling tickets, agents should carefully examine the transit permit and note the name of the passenger in charge, and of any others proposing to accompany the body, and see that all necessary precautions have been taken to prevent the spread of the disease. The transit permit in such cases shall specifically state who is authorized

by the health authorities to accompany the remains. In all cases where bodies are forwarded under Rule 2, notice must be sent by telegraph by the shipping embalmer to the health officer, or, when there is no health officer, to other competent authority at destination, advising the date and train on which the body may be expected.

RULE 5. Every dead body must be accompanied by a person in charge, who must be provided with a passage ticket and also present a full first-class ticket marked "Corpse" for the transportation of the body, and a transit permit showing physician's or coroner's certificate, name of deceased, date and hour of death, age, place of death, cause of death and all other items of the standard certificate of death recommended by the American Public Health Association and adopted by the United States Census Bureau, as far as obtainable, including health officer's or registrar's permit for removal, whether a communicable or non-communicable disease, the point to which the body is to be shipped, and, when death is caused by any of the diseases specified in Rule 2, the names of those authorized by the health authorities to accompany the body. Also the undertaker's certificate as to how the body has been prepared for shipment. The transit permit must be made in duplicate, and the signature of physician, or coroner, health officer, and undertaker, must be on both the original and duplicate copies. The undertaker's or registrar's certificate and paster of the original shall be detached from the transit permit and securely fastened on the end of the coffin box. All coffin boxes must be provided with at least four handles. The physician's certificate and transit permit shall be handed to the passenger in charge of the corpse. The whole duplicate copy shall be sent to the official in charge of the baggage department of the initial line, and by him to the secretary of the State or provincial board of health of the State or province from which said shipment is made.

RULE 6. When bodies are shipped by express, a transit permit, as described in Rule 5, must be made out in duplicate. The undertaker's certificate and paster of the original shall be detached from the transit permit and securely fastened on the coffin box. The physician's certificate and transit permit shall be attached to and accompany the express way-bill covering the remains, and be delivered with the body at the point of destination to the person to whom it is consigned. The whole duplicate copy shall be sent by the forwarding express agent to the secretary of the State or provincial board of health of the State or province from which the shipment was made.

RULE 7. Every disinterred body, dead from any disease or cause, shall be treated as infectious or dangerous to the public health, and shall not be accepted for transportation unless said removal has been approved by the State or provincial health authority having jurisdiction where such body is disinterred, and the consent of the health authority of the locality to which the corpse is consigned has first been obtained; and all such disinterred remains, or the coffin or casket containing the same, must be wrapped in a woolen blanket thoroughly saturated with a 1-1000 solution of corrosive sublimate, and enclosed in an hermetically soldered zinc, tin, or copper-lined box. But bodies deposited in receiving vaults shall not be treated and considered the same as buried bodies, when originally prepared by a licensed embalmer as defined in Rule 2, and as directed in Rule 2, provided shipment takes place within thirty days from the time of death. The shipment of bodies prepared in the manner above directed by licensed embalmers from receiving vaults may be made within thirty days from time of death without having to obtain permission from the health authorities of the locality to which the body is consigned, provided the cause of death was not any of the diseases named in Rule 2. After thirty days the casket or coffin box containing said body must be enclosed in an hermetically soldered box.

RULE 8. All rules and parts of rules conflicting with these rules are hereby repealed.

RULE 9. These rules shall take effect and be in force on and after August 1, 1904.

Adopted June 22nd, 1904.

Attest:

C. O. PROBST, M. D.,
Secretary.

On motion of Dr. Stanton, seconded by Dr. Chapman, these rules were adopted.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

The secretary reported that he had had a conference with Mr. Bennett, special counsel to the Attorney-General, in reference to Wapakoneta, where sewers had been constructed after the plans for same had been disapproved by the Board.

On motion of Dr. Chapman, the secretary was instructed to again bring this matter to the attention of the Attorney-General and to urge him, if possible, to assist the Board in enforcing its order.

It was moved by Mr. Hartzell, and seconded by Dr. Stanton, that the building of a combined sewer in Louisiana Avenue in Perrysburg, be approved upon the condition that an intercepting sewer and sewage purification works be introduced whenever in the opinion of the Board this is deemed necessary.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

On motion of Dr. Crossland, seconded by Dr. Stanton, it was voted to approve plans submitted for a water supply for the city of Newark.

Dr. Stanton moved to reconsider this vote and this motion was carried.

Dr. Palmer then moved to refer the matter to the engineer of the Board for investigation and report as to the condition of the watershed involved in the question of the Newark water supply.

On motion of Mr. Hartzell, it was voted to defer action in reference to the plans for proposed changes in the water supply for Vermilion until a report upon such changes could be made by the engineer of the Board.

Matters which had been voted upon by mail were then taken up for confirmation.

It was moved by Dr. Stanton, and seconded by Dr. Chapman, to confirm the action disapproving a sewer in High Street, at Bryan; with outlet into Joe Run, and with the advice that plans for a general system of sanitary sewers and sewage disposal be adopted.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Palmer, to confirm the action approving a storm water sewer in Heaton Street in the northerly part of the city of Hamilton.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Stanton, to confirm the action approving of a sewer in Lancaster, with the understanding that when purification works are built no surface water shall be admitted to this sewer.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, to confirm the action approving of a change in outlet of a sewer in the Northwestern Sewer District of Zanesville; the outlet to discharge into the Muskingum River at the foot of McIntire Avenue.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Stanton, to confirm the action disapproving of a water supply for Miamisburg, to be obtained from wells on the "Grove Lot."

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

On motion of Dr. Chapman, seconded by Dr. Stanton, the actions approving health officers appointed by council to serve in lieu of a board of health were confirmed.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Chapman, to confirm the actions approving the rules and regulations adopted by the health officers of Frazeysburg, Mt. Sterling, North Amherst and Pomeroy.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Palmer, that the action of the committee approving the rules for Attica, Rockport and Tontogany, be confirmed.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Chapman.

In the negative, none.

The election of officers was then announced.

Dr. Stanton nominated Dr. Warner for president and moved that

the nomination be closed and the secretary be instructed to cast the ballot for Dr. Warner. This motion was carried.

The secretary cast the ballot, as instructed, and Dr. Warner was declared elected president, to take his seat at the next regular meeting of the Board.

Dr. Palmer nominated Dr. Chapman for vice-president and moved that the secretary be instructed to cast the ballot for Dr. Chapman. This motion was carried.

The secretary cast the ballot, and Dr. Chapman was declared elected vice-president.

There being no further business, the Board adjourned.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

June Meeting, 1904.

Mr. President and Members of the Ohio State Board of Health:

GENTLEMEN:—Your secretary begs leave to respectfully report as follows:

Smallpox has continued to prevail to some extent; has been the cause of much correspondence but fewer visits than ordinarily.

Trotwood, Hebron, Trimble and Byesville were visited by a medical inspector on account of smallpox; and Haskins, Wood County, by Dr. Chapman. At the request of the local authorities, Dr. Chapman also visited the vicinity of Swanton. Dr. Stanton visited Dallasburg, Warren County; and Dr. Crossland visited Byesville.

For the week ending June 18th, there were 46 cases of smallpox reported. Since January 1st, 1904, to June 18th, there have been 2,681 cases and 72 deaths reported, a death rate of but 2.7.

Since the last meeting the engineer visited Mt. Sterling, Delphos, Bluffton, Bryan and Wapakoneta, on account of sewerage; Zanesville on account of sewers and water supply; Lancaster and the Mansfield Reformatory, on account of sewage disposal, and Hamilton on account of a nuisance. He also visited Elyria and Lorain to inspect their water filters.

It will be remembered that the Board voted to approve filters for the city of Elyria providing a two months test showed good efficiency, and that some one properly instructed should be left in charge to look

after their operation. The report of the two months operation, under the superintendency of Mr. Brown of Elyria, gave satisfactory results, but some difficulty having arisen in regard to instructing his successor made it desirable to have the filters examined by our own bacteriologist. A copy of the bacteriologist's, Mr. Horton's, report was sent to the members of the Board, and upon this showing I would recommend that the Board formally approve the Elyria filters.

The board of health of Ashtabula reported eleven cases of typhoid fever for the week ending April 30th, and 131 cases of the disease since February 1st, 1904. The bacteriologist was sent to Ashtabula on May 4th, and made an investigation. He met the health officer and a number of their physicians, and secured some information concerning conditions there. He found that 150 cases had been reported to the health officer since the first of February, resulting in fifteen deaths. Inquiry as to the milk supply of various patients showed that this could not have been the source of infection. He learned, however, that almost without exception all patients had used water from the public supply and the great majority used this exclusively. The Ashtabula water supply is taken from Lake Erie near the mouth of the Ashtabula River, and is undoubtedly subject to serious pollution at times. A copy of the report of the bacteriologist was sent to the board of health of Ashtabula, and that board was urged to use every means possible looking towards the introduction of proper filtration works at an early date.

The Board may deem it proper to adopt some resolution at this meeting emphasizing this menace to the health of the people at Ashtabula.

It may be recalled that our engineer made an investigation of a typhoid fever outbreak at Conneaut; the second time our Board has been called upon to make such an investigation. The last outbreak seems to have been caused by improper working of the filters for the public supply. I had our bacteriologist, therefore, at the time of visiting Ashtabula, stop at Conneaut, unannounced, and investigate the plant and see how it was working.

Samples were collected at hourly intervals of the afternoon of May 4th and the morning of May 5th. The bacteriologist reported that "The bacterial reduction in these tests was quite satisfactory and especially so when it is remembered that the lake water on the first day had 1,300 bacteria per cc., and on the second day the count for the raw water was only 300 per cc. These low figures in the raw water necessarily make the percentage of removal low. A better way to consider the efficiency of the process in such a case is by the number of bacteria in filtered water. The number of bacteria in the filtered water ranged from 2 to 50 with an average of 16 per cc. in

ten samples. The results show that the filters were doing effective and satisfactory work at the time of the test."

The company is about to install an additional filter, which is needed on account of its being necessary at times to work the filters to their highest capacity.

A copy of the report of the bacteriologist was sent to the board of health of Conneaut, and also to Mr. Frederick C. Howe, who was the receiver and is now, I understand, the president of the Conneaut Water Company. He expressed his gratification at the results of the investigation and stated that within a few weeks their new filter will be ready for use and concluded with the statement, "I am overlooking no means for running the plant thoroughly satisfactory to your Board."

At the request of the health officer of Hamilton, the engineer was sent there to investigate a nuisance caused by the pollution of an old hydraulic, or water power canal, which was receiving rubbish, slops, brewery wastes, etc.

The engineer recommended that the Market Street hydraulic, which was the one polluted, should be either cleaned out and arched over, or else abandoned and filled up; and in case it be arched over that sewage be kept out of it. A copy of the engineer's report was sent to the health officer of Hamilton with the advice that he refer the same to their city solicitor for legal steps to be taken to secure the abatement of the nuisance.

A communication in reference to sewerage for Perrysburg was sent to the Attorney-General under date of May 4th. In some way it was overlooked. I spoke to Mr. Bennett, assistant to the Attorney-General to whom work of this character has been assigned, a few days ago. He was on the point of leaving the city, but promised to take the matter up on his return.

The board of public service of Marietta submitted four sets of plans for a public water supply, upon which they asked the State Board to pass and select the one they would approve. They were notified that it would be the duty of the board of public service to select plans and then submit them to the State Board of Health for approval. Nothing has since been heard from them.

I attended the joint meeting of State and Territorial Boards of Health with the Surgeon General of the Public Health and Marine Hospital Service, held in Washington, D. C., June 3d; and the Conference of State and Provincial Boards of Health of North America, which followed immediately after.

The president, Dr. Miller, being unable to go, appointed Dr. Warner to go in his stead, and Dr. Warner was present.

The conference with the Surgeon General of Public Health and Marine Hospital Service developed nothing of special interest. The

Surgeon General made a statement as to work being carried on by that department, with which most of us were familiar, and then called for reports as to work being done in the various states. He then read a list of special committees appointed to work with the national department along lines suggested by the titles. These were as follows:

Scientific research and sanitation.

Prevention and spread of epidemic diseases.

Morbidity and mortality statistics.

State legislation.

Education.

Special committees were also appointed on the following diseases: Cholera, yellow fever, plague, smallpox, tuberculosis, leprosy and typhoid fever.

After the meeting the conference visited the laboratory of the Public Health Service.

The conference of State and Provincial Boards of Health of North America convened at 4 p. m. of the 3d.

The committee appointed to investigate embalming fluids, to determine what should be considered a satisfactory fluid, reported that it was not practicable for the committee to prepare a report of this kind without facilities for experimental work. The committee was continued and asked to make further report later.

The committee appointed at the Baltimore meeting to prepare a circular letter to physicians, and a circular upon the prevention of venereal diseases, submitted a report which was adopted. After the discussion which followed the committee was authorized to make any changes in the circular of instructions which they might deem advisable, have their report printed and sent to the various State Boards of Health, recommending that the circular adopted be sent by the various State boards to the physicians in their respective States.

The resolution offered at the Baltimore meeting, recommending that measures should be taken by boards of health and school authorities for the proper examination of the eyes and ears of all school children, was adopted.

A very interesting paper on the extermination of the mosquito, prepared by Mr. Weeks, secretary of the National Mosquito Extermination Society, was read by Dr. Howard, entomologist of the Department of Agriculture. A resolution was adopted, to the effect that it is the duty of State Boards of Health to obtain legislation and appropriations for drainage, etc., for the destruction of the mosquito.

Dr. John S. Fulton, secretary of the State Board of Health of Maryland, was elected president.

Dr. N. K. Foster, secretary of the State Board of Health of California, was elected vice-president.

The secretary, Dr. Swarts of Rhode Island, and the treasurer, Dr. Egan of Illinois, were re-elected. There were twenty-four States represented.

The actions of the Board taken by mail since the last meeting should be confirmed.

In explanation of the situation at Miamisburg it may be said that they asked the Board to approve a water supply to be obtained from wells on what was known as the Grove Lot. The engineer visited Miamisburg and did not approve of the situation of the wells. A sample of water was taken from a well at this site and upon examination showed pollution. Subsequently a conference was held with Mr. Jacobs, the secretary of the board of trustees of public affairs, and he was advised to have the village look for water elsewhere. At our last meeting, April 27th, 1904, Mr. Jacobs was present and asked the Board to approve a water supply to be taken from driven wells located on the southerly borders of Miamisburg. The Board voted to give such approval, the site being satisfactory, provided that analyses of samples from a test well showed a water of good quality. Subsequent to this Miamisburg again asked for approval of a supply to be taken from wells on the Grove Lot. As stated, this supply was disapproved.

Respectfully submitted,

C. O. PROBST,
Secretary.

OCTOBER MEETING.

A regular meeting of the State Board of Health was held at the Grand Hotel, Cincinnati, at 8 p. m., October 20th, 1904.

All members were present except Dr. Chapman.

On motion of Dr. Stanton it was voted to postpone the reading of the minutes and to hear from a delegation from Springfield in reference to plans for sewerage and sewage disposal. The Board was then addressed by Mr. Bradbury, representing Messrs Snow & Barbour, consulting engineers; by the city solicitor, and by the president of the board of public service.

The matter was referred to executive session.

Mr. Sherman, representing the firm of The Riggs & Sherman Co., consulting engineers for the village of New London, presented plans for a water supply for that place.

The Board then went into executive session.

The minutes of the last meeting were read and, on motion of Dr. Miller, approved.

The secretary presented his quarterly report, which on motion was approved and ordered filed for publication.

The committee appointed to investigate the sanitary condition of the Ohio Penitentiary presented a report with recommendations.

On motion of Dr. Palmer, seconded by Mr. Hartzell, the report was adopted and approved.

Plans for a public water supply for the village of Covington, to be obtained from wells located immediately southwest of the junction of Greenville Creek and Stillwater River, were presented.

It was moved by Dr. Miller, and seconded by Dr. Palmer, that the plans be approved with the exception of the proposed emergency intake into Stillwater River, and that this be disapproved; and that the village be advised to build a reservoir of a capacity that will afford sufficient fire protection.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

A report was presented upon a water supply proposed for Miamisburg, to be derived from wells located on the Zunkle Lot, a portion of land containing nine acres and situated upon the south corporation line of the village, being bounded on the west by the Big Four R. R. and on the east by a steep hill.

It was moved by Dr. Miller, and seconded by Dr. Crossland, that action be deferred in the matter until samples could be obtained from wells after thorough pumping with the permanent machinery.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

Plans submitted by Chapin & Knowles, consulting engineers, for a public water supply for the village of Waynesburg, were considered; said supply to be obtained from two wells, 150 feet deep, located in the southeasterly part of the corporation, upon a three acre lot already controlled by the village.

It was moved by Mr. Hartzell, and seconded by Dr. Miller, that these plans be disapproved in view of the inferior quality of the samples collected, and that the secretary be instructed to request that other samples of the supply be submitted after further pumping of these wells.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

A request from Mr. F. M. Lillie, city engineer of Youngstown, was presented, asking for the approval of a change in the design of the strainer system at the Youngstown filter, said system to contain only one set of pipes to be used for both air and water alternately, instead of two sets of pipes as previously proposed and approved by the State Board of Health.

On motion of Dr. Miller, and seconded by Mr. Hartzell, it was voted to approve said change in plans.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

Plans were presented for sewage disposal for the annex to the Ohio Institution for Feeble Minded Youth, said annex consisting of new buildings which have been or are to be constructed on a tract of land near Big Darby Creek, in the vicinity of Morgans, Ohio, these plans providing for eight gravel filter beds, of a total area of one acre.

It was moved by Dr. Miller, and seconded by Mr. Hartzell, that these plans be approved; and that the attention of the authorities be called to the importance of providing a proper dosing tank; and of laying underdrains in case the sewage does not drain away satisfactorily from the surface of the beds.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

The plans for a water supply for New London were taken up for

consideration; said supply to be obtained by impounding a small stream, known as Bonnie Creek, which flows in a northwesterly direction and has, above the village, a watershed of about 2,100 acres of cultivated, pasture and grass land, located immediately southeast of the village.

It was moved by Dr. Miller, and seconded by Dr. Palmer, that these plans be approved upon the following conditions:

A. That the board of trustees of public affairs of New London enforce the following rules and regulations and appoint an inspector whose duty it shall be to inspect the watershed of the Bonnie Creek reservoir every two weeks, and to report to said board of trustees of public affairs any violation of said rules and regulations and also all cases of sickness existing upon the watershed of said reservoir.

(For these rules and regulations see report on proposed water supply for New London.)

B. That the State Board of Health reserve the right to require the introduction of a filtration plant in case it finds that these rules and regulations are not being properly observed, or if the water proves to be of such quality as to warrant filtration.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

Drs. Warner and Stanton, appointed as a committee to investigate an alleged nuisance in Cedarville Township, Greene County, caused by the refuse drainage from the strawboard works, presented a report.

On motion of Dr. Miller, seconded by Dr. Palmer, the report was approved.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

The secretary reported that the authorities of Franklin had been given permission by him to temporarily use the water from certain old wells on account of an emergency arising from a failure in their public supply, analysis showing the water to be safe for use.

On motion of Dr. Stanton, seconded by Mr. Hartzell, this action was approved.

The secretary brought up the question of placing an outfit for mailing specimens for the diagnosis of tuberculosis, diphtheria and typhoid fever in the county seat of each county in the state and offering to make examinations of such specimens free of charge at the request of any physician in Ohio, except in cities maintaining a municipal laboratory.

On motion of Dr. Palmer, seconded by Dr. Miller, the secretary was authorized to carry out such plan at an expense not to exceed \$300 per year.

A communication was presented from the president of the Tobacco Growers' and Farmers' Union, Germantown, Ohio, in reference to selling strippings collected from the floors of tobacco houses.

The Board having no authority to deal with such conditions, the letter was ordered filed.

A communication was presented from Mr. Roger M. Lee, an attorney of Cleveland, in reference to an alleged nuisance in Rocky River arising from the improper use of a private drain.

On motion of Dr. Miller, the engineer of the Board was requested to make an investigation and report upon this complaint.

A communication from the city engineer of Youngstown was presented, requesting that an investigation be made of a proposed sewer in McGuffey Street, that city.

The matter was referred to Mr. Hartzell for investigation and report.

Matters previously acted upon by mail vote were taken up for confirmation as follows:

It was moved by Mr. Hartzell, and seconded by Dr. Stanton, to confirm the action granting permission to the trustees of Danbury Township, Ottawa County, to open the Bradley Temple well and the well at the corner of 5th and Sycamore Streets, Lakeside, for stock purposes only, until May 15th, 1905.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

Dr. Stanton moved, and it was seconded by Dr. Miller, to confirm the action approving a water supply for Barnesville, to be obtained by impounding the waters of a small stream known as Patterson's Fork of Capatina Creek, upon the following conditions:

A. That the board of trustees of public affairs of Barnesville enforce the following rules and regulations and appoint an inspector whose duty it shall be to inspect the watershed of the reservoir every two weeks, note any violation of said rules and regulations and also all cases of sickness existing upon the watershed.

(For these rules and regulations see report on proposed water supply for Barnesville.)

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, to confirm the action approving a water purification plant for the city of Marietta (designed by the New York Continental Jewell Filtration Co.) and the guarantee as to the efficiency of the filters, upon the condition that any change in the use of the coagulant, or in the method of operating the plant, be made when deemed advisable by the State Board of Health.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, to also confirm the action approving plans for a water purification plant for the city of Marietta, as submitted by the Norwood Engineering Co., of Florence, Mass., with the condition that if a change in the use of the coagulant, or in the method of operating the plant, be deemed advisable by the State Board of Health it shall be made without unnecessary delay; and suggesting that a definite arrangement be made regarding an official test before the work is begun, in order that the terms of the guarantee made by the filter company be fully carried out.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, that the action be confirmed approving plans for a new storm water overflow into Raccoon Creek for the South Fourth Street sewer in the city of Newark.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Crossland, to confirm the action of the Board approving a water supply for the city of Newark, to be obtained from the north fork of the Licking River at a point just above the present intake, upon the condition that the water be purified in a manner satisfactory to the State Board of Health before being offered to consumers.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, to confirm the action approving an additional water supply for Plain City, to be obtained from an artesian well 377 feet deep and representing practically the same supply as is now in use.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Stanton, that the action be confirmed approving an additional water supply for Mt. Vernon, to be obtained from a well located 100 feet west of the present water supply and 100 feet from the Kokosing River.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Stanton and seconded by Dr. Miller, to confirm the action approving a new water supply for Zanesville, to be obtained by wells from one of the series of gravelly plains which border on the easterly bank of the Muskingum River and extend with varying width for many miles above the city; the plain in question being immediately north of the city limits, about two miles long and varying in width from practically nothing to 1,500 feet; and recommending that the pumping station be so designed that it may be made a part of a future filtration plant and so located that an intake, into the Muskingum River at a point above all pollution from the city, can be constructed economically should it be necessary in the future to resort to the river for a supply; and further recommending the installation of water meters as a desirable and economical measure.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, to confirm the action modifying the approval (given December 23d, 1903) of plans for sewers in certain streets and avenues in Linwood, a part of Cincinnati, to read "That no water-closets or outhouses be connected with these sewers until after the completion of the new water works system and that all plumbers and sewer tappers making such connections have their licenses revoked and that these sewers and all house connections be inspected every three months by the sanitary inspector."

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Crossland, to confirm the action taken in regard to plans for sewerage and sewage disposal for Delphos, submitted by Mr. G. L. McKibben, the consulting engineer, which was as follows:

1st. The construction and use of the combined sewers was approved with the understanding that all connections for domestic

sewage be removed from them as soon as it is found that the discharge of such sewage through the sewers causes a nuisance either on account of odors arising through catch basins in the streets, or on account of pollution of the stream caused by the impracticability of purifying such sewage when combined with storm water.

2d. The discharge of the dry weather sewage into Jennings Creek near the northwesterly limits of the corporation, after such sewage has first been passed through a sedimentation tank holding 15,000 gallons, was approved until such time as the State Board of Health deems thorough purification necessary; and,

3d. The storm water system and outlet into Jennings Creek were approved for the Third Ward District.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, to confirm the action approving plans for a sewerage system for the city of Elyria (presented by The Riggs and Sherman Company, consulting engineers, and dated July, 1904), and recommending that the present combined sewers be excluded from the system as soon as practicable and used for storm water only; and disapproving the outlets of this system into Black River unless the sewage be purified in a manner satisfactory to the State Board of Health before being discharged into the river.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Stanton, to confirm the action approving plans for an outlet into the Black River opposite Tenth Avenue, for that district of South Lorain bounded by Tenth Avenue, Orange Street, Seventeenth Avenue and Grove Street, provided,

1st. That the sewage be carried into the river current and not allowed to flow over the banks; and,

2d. That sewage purification works, satisfactory to the State Board of Health, shall be built at any time said Board may designate after a year from the day the sewers are first used.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Miller, to confirm the action approving plans for sewerage for a portion of the property of the Sheffield Land and Improvement Company at Lorain, known as Allotment 5, said district being bounded by 17th Avenue,

Orange Street, 21st Avenue and Grove Street, the main sewer to discharge directly into Black River near 17th Avenue, provided,

1st. That the sewage be carried into the river current and not allowed to flow over the banks, and

2d. That sewage purification works, satisfactory to the State Board of Health, shall be built at any time said Board may designate after a year from the day the sewers are first used; or in case sewage purification works are built for the territory immediately north of the southerly limits of the city of Lorain before said Board has stated that works are to be built for the district in question the proposed sewers shall be made to discharge at such purification works as soon as possible.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, that the action be confirmed approving plans for sewage disposal and refuse incineration for the city of Marion, as shown on drawings made by Mr. George H. Pierson, consulting engineer, and submitted by Mr. Wm. Fies, city clerk. (Samples of all filtering material to be submitted to and receive approval of the State Board of Health before use.)

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Crossland, to confirm the action approving plans submitted by The Walter P. Rice Engineering Company for a sewerage system and sewage purification works for the city of Newark as follows:

A. The separate system of sewers as proposed, with the recommendation that underdrains be laid beneath all sewers which are to be below ground water level, and that the new sewers be made to intercept the dry weather flow from the old combined sewers until such time as all streets can be sewered upon the separate plan.

B. The method of purifying the sewage by intermittent sand filtration, after preliminary treatment in the separating or septic tanks is approved, provided,

1st. That the said tanks be divided into units holding not more than 200,000 gallons each.

2d. That suitable provision be made for cleaning out these tanks when necessary and discharging the contents upon sludge beds, and,

3d. That the sand filter beds be composed of sand of a size and quality represented by samples No. 2 and No. 3 recently submitted to this Board by The Walter P. Rice Engineering Company, and that the

area of sand beds be such that the sewage will not be treated at a greater rate than 150,000 gallons per acre per day.

C. The proposed site for the sewage purification plant, near the junction of Raccoon Creek and the South Fork of the Licking River, is approved for use until such time as, in the opinion of the Ohio State Board of Health, the quantity of sewage becomes too great to be satisfactorily treated by sand filtration upon this site.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, to confirm the action approving plans for a 12-inch sewer at Uhrichsville, to discharge into Big Stillwater Creek at the foot of Parish Street, provided,

1st. That the outlet be carried by an iron pipe into the current of the stream so that the sewage will not come in contact with the banks; and,

2d. That an intercepting sewer be constructed, when considered necessary by the State Board of Health, to convey the sewage from this sewer further down stream to purification works or to a point where it can be inoffensively discharged into the creek.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Stanton, to confirm the action approving plans for an 8-inch sewer, 2,000 feet long, in Eastport Avenue, for the hospital of Dr. J. A. McCollam and four or five houses just outside the corporation limits of Uhrichsville, provided the outlet be into Big Stillwater Creek instead of Little Stillwater Creek, and until such time as purification works are built for Uhrichsville.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Miller, to confirm the action extending the time when the new rules governing the transportation of dead bodies should go into effect from August 1st to September 1st, 1904.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Palmer, to confirm the action adopting the following order of precedence in the signing of blanks for the transportation of dead bodies:

In cities and villages with a board of health, or where the board of public service acts as a board of health:

First, the health officer.

Second, the clerk of the board of health in the absence of, or when deputized by, the health officer;

Third, the president of the board of health, who is the mayor.

In villages where there is a health officer in lieu of a board of health:

First, the health officer;

Second, the mayor;

Third, the village clerk.

In townships, either the health officer or clerk, and in the absence of both, any member of the board of health.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Palmer, and seconded by Dr. Crossland, to confirm the actions approving health officers appointed by council in lieu of a board of health.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, to confirm the action appointing Dr. O. L. Mapes health officer for Lakeside for the season of 1904; Dr. Mapes having been recommended by the Lakeside Camp-meeting Association, and approved by the Danbury Township health authorities.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Miller, to confirm the action appointing Dr. O. S. Cox health officer of Richland Township, Vinton County, for a term of one year and at a salary of \$60.00 per year; the trustees of the township having refused to appoint such an officer.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Miller, to confirm the actions approving the rules and regulations adopted by the health officers of Bradner, Osborn, St. Paris and Rarden.

Those voting in the affirmative were Messrs. Stanton, Hartzell, Crossland, Warner, Palmer and Miller.

In the negative, none.

There being no further business, the Board adjourned.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

October Meeting, 1904.

Mr. President and Members of the Ohio State Board of Health:

GENTLEMEN:—Your secretary begs leave to respectfully report as follows:

The smallpox situation has greatly improved, although there has been recently a slight increase in the number of cases reported. For several weeks during the summer but one or two cases a week were reported. Since the last meeting of the Board, June 22d, there have been 163 cases and two deaths reported. For the week ending October 15th, smallpox was reported present in four counties and in five places.

Visits on account of the disease were made by medical inspectors to the following places: McArthur, Harlem Township, Delaware County; Xenia, Piqua, Rushsylvania, Colerain Township, Ross County and Byesville.

Visits as follows were made by members or employes of the Board:

Dr. Stanton visited Amelia on account of scarlet fever.

Drs. Warner and Stanton visited Cedarville on account of the pollution of Massicks Creek by waste from the strawboard works.

Drs. Chapman, Warner, Stanton, Hartzell and Probst visited Lakeside to investigate the condition of their water filters; and Put-in-Bay relative to the sanitary condition of that place.

The chemist visited Batavia, Dennison, Fostoria, Geneva, Middleport, Pomeroy, Oberlin and Warren to inspect the water filters, and Lakeside and Put-in-Bay in regard to water supply.

The engineer visited Alliance, Barnesville, Miamisburg, Covington, Franklin, New London and Port Clinton in regard to water supply; Dennison, Geneva, Lakeside, Oberlin, Warren and Vermilion relative to water filters; and Elyria, Granville, Lorain, Marion, Newark, Springfield and Uhrichsville in regard to sewerage and sewage disposal plants. He also visited Put-in-Bay in regard to the sanitary condition.

Camden and Rarden were visited by one of the medical inspectors on account of diphtheria; and Bethel on account of typhoid fever.

The secretary visited Mansfield, where he gave a public address on tuberculosis; and also Chicago to inspect their hospital and dispensaries for tuberculosis.

Dr. Stanton's trip to Amelia was to establish the diagnosis in scarlet fever and aid the local authorities in securing reports of cases.

The committee that visited Lakeside found no evidence of unfiltered lake water being used for domestic purposes. There was reason to believe that the filters were not being properly operated. The superintendent, Mr. Tanneyhill, was notified that the following changes would be required:

1. Scrape filters as seldom as possible consistent with obtaining sufficient filtered water.

2. Place sand of fine grade in filters 1, 2, 3 and 4 in sufficient quantity to make the total depth of filtering material four feet, as it was originally.

3. Provide a gutter around the inside of each tank just above the proper sand level, or provide other device whereby the inflowing water will be distributed on the sand as quietly as possible.

The bacteriologist was sent to Lakeside July 17th, and tested the filters. The results showed that the filters were doing very poor work. August 16th, 1904, the following additional requirements regarding the filters, were sent to Mr. Tanneyhill:

1. Fill new filters No. 6 and No. 7 with sand up to a point within seven feet of the top of the tanks, thus making the depth of filtering material about 4 feet and 4 inches.

2. Adjust float valves which control the flow of water on to the filters, so that the water in the filters can at no time rise higher than a point one-half foot below the top of the old tanks (Nos 2, 3, 4 and 5) nor higher than a point 2 feet below the top of the new tanks Nos. 6 and 7.

3. Place indicator on pump and have record kept on the enclosed blanks of the number of strokes per day.

4. Repair broken filtered water pipe in the regulator box of filter No. 3.

At Put-in-Bay the committee met the board of health and discussed needed changes in water supply and sewerage. Lack of funds was urged as the reason these could not be carried out.

The bacteriologist of the Board visited Put-in-Bay on July 19, 1904, and collected samples of water for examination. (A report upon these samples may be found in the laboratory report upon water supplies.)

The following points, developed in the investigation of filter plants, may be alluded to:

At Geneva from 5 to 7 grains of alum per gallon were being used. This is extraordinarily high, and probably unnecessary. The attention of the superintendent of the water works was called to this. The plant was working up to the guaranteed efficiency.

At Oberlin the new softening process was giving good results. The alkalinity of the untreated water was 153, and the incrusting constituents 17. In the treated water these had been reduced to 34 and 4 respectively. The untreated reservoir water had considerable odor and taste due to a vegetable growth. The attention of the authorities was called to the copper sulphate treatment of such waters as a remedy, and they were advised to keep track of experiments being made in Massachusetts and elsewhere in this matter.

At Warren the filters were found to be working satisfactorily. The raw river water was much polluted, showing the need for purification.

At Fostoria the water supply was found in a satisfactory condition. The so-called filter effected no purification of the water, this agreeing with former reports.

At Dennison the results of filtration were satisfactory except as regards filter No. 2, which gave results below standard. Only about .3 of a grain of alum per gallon was being used, as the river water was very clear. The superintendent was advised to never use less than one-half grain per gallon.

At Pomeroy satisfactory results in filtration were being obtained. The Ohio River, source of supply, was in an unusually good condition. The coagulant, alum, was not being applied so as to secure uniform distribution. The amount used, as nearly as could be estimated, was one-third grain per gallon, too small an amount under usual conditions.

At Batavia the filters were found doing poor work. The authorities were advised to have them overhauled, and then have a second examination made.

A full copy of the report of the investigation in each of these cases was sent to the water works and the health authorities.

The city of Franklin notified me that they were suffering from a failure in water supply. They asked permission to make temporary use of certain old wells. The engineer was sent there to investigate and collect samples of the proposed temporary supply. The examination showed a usable water and, as they were in dire distress for water, I took the authority to temporarily approve its use.

The Board should confirm its actions taken by mail since the last meeting.

Respectfully submitted,

C. O. PROBST,
Secretary.

PUBLIC WATER SUPPLIES

REPORT ON PROPOSED ADDITIONAL WATER SUPPLY FOR ALLIANCE.

The city of Alliance, through its city engineer, Mr. O. E. Pfouts, made application for the Board's approval of the use of Well No. 1, near the present water works pumping station, as an additional or new public supply. The engineer of the Board visited Alliance on September 14th, 1904, and the following report was made:

The present water supply of Alliance is taken from the Mahoning River at a point near the city. This water is unsatisfactory as regards quantity available, appearance and organic contents.

It is proposed to improve or replace the present supply by using water from a driven well located by the side of the street near the present water works pumping station and about 150 feet from the river.

The well consists of a 10-inch pipe, driven into a gravel deposit overlaid by clay and shale, to a total depth of 71 feet. The water stands in the well 13 feet below the surface of the ground and about 1 foot above the level of the river; thus indicating a flow toward the river.

The following pumping tests have been made: For five hours the well was pumped at the rate of 200 gallons per minute, and the water level was lowered 6 feet in the well; while for seven hours the well was pumped at the rate of 150 gallons per minute without lowering the water level.

Upon land which slopes toward this well, there are thirteen houses within 1,000 feet of it; the nearest being 200 feet away. These houses would probably not endanger the water of the wells. At the city sewage disposal works, located seven to eight hundred feet upstream from the proposed well, about one-half way between the water works intake and the water works pumping station, a large amount of unpurified sewage is daily discharged into the river with the effect of grossly polluting that stream; it being said that the odors arising from the river at the water works pumping station, where the proposed well is located, are at times unbearable.

It is shown by the tests that when the proposed well is being pumped at a rate of 200 gallons per minute the water level is lowered to a point 5 feet below the river, 150 feet distant. It would seem probable, therefore, that some pollution would be drawn from the river when the well is being pumped at high rates. Some means of preventing this possible pollution should be taken if the proposed well is to be used.

The analysis of the water shows it to be safe at present, but less

desirable on account of hardness and iron than the present supply. As the public supply at Alliance is used extensively for steam purposes, the water from this well would cause much dissatisfaction. (For a report upon this water, see laboratory report upon water supplies.)

The use for public supply purposes of Well No. 1, located near the corner of Gaskill Street and Walnut Avenue, near the present water works pumping station, was approved by the Board October 29th, 1904, provided a sewer be constructed to convey the effluent from the city's sewage disposal works to a point below the Gaskill Street bridge.

The city officials were also notified that the water of Well No. 1, though not dangerous to health, would give much dissatisfaction, if used as a public supply, on account of its turbidity, hardness and iron contents.

REPORT ON PROPOSED WATER SUPPLY FOR BARNESVILLE.

The president of the board of trustees of public affairs of the village of Barnesville, Mr. J. W. Doudna, asked the State Board to send someone there to inspect a site for a proposed reservoir. The engineer of the Board visited Barnesville July 1st, 1904, and inspected the proposed location in company with the board of trustees of public affairs and their consulting engineer, Mr. L. E. Chapin. July 5th Mr. Chapin presented definite plans and a statement of the proposed work, upon which the following report was made:

Barnesville is a village of nearly 5,000 population, situated upon high land in the westerly part of Belmont County. There is at present no public water supply, the inhabitants depending upon wells and cisterns for their water.

It is proposed to impound a small stream known as Patterson's Fork of Capatina Creek, the watershed of which contains six to seven hundred acres and is located about one and one-half miles south of the corporation. The village drainage does not reach this watershed, which at present contains only nine houses, three of which will be purchased and destroyed by the village before the works are completed. Although the watershed is small in area the extensive gravel deposits therein located serve to retain the rainfall and regulate the flow of the stream. As evidence of this, several feeders of the stream

were followed up and found to originate in clear springs issuing from the hillside.

Although turbid during heavy rains, it is stated that the water becomes clear within a few hours after the rains cease.

The following statements in a letter of the consulting engineer, dated July 5th, describe the principal features of the project:

"The supply is to be taken from the surface and spring waters of the watershed of Patterson's Fork of Capatina Creek, by the construction of an earthen and masonry dam across the valley of said creek at a point about one and three-fourths miles south of the village limits; the dam to have such height and location as will impound a minimum of 70,000,000 gallons of water.

"The vegetable and organic matter to be removed from within the area occupied by the reservoir, and the earth so removed used to fill low places above the water line, and for the outer slopes of the embankment.

"The drainage from all farm houses situated within your required distance from the reservoir shall be so controlled and regulated as to prevent possibility of contamination to the stored waters.

"To insure clear water for village use it is proposed to construct a clear water basin, below the reservoir, into which to draw off the reservoir waters when the same are clear and free from sediment.

"The area of the watershed is between six and seven hundred acres and the stream is so fed by good springs, some of large volume, that in dry years, there is water running in the stream at all times, except perhaps six weeks of the driest times. And the conditions of supply are such that we believe a daily supply of 500,000 gallons may be constantly had by aid of an impounding reservoir of the capacity above named.

"It is proposed to pump this water as taken from the clear water basin direct to the village mains, and against a head of 125 pounds.

"A plan of the watershed is herewith submitted, and numbered 874, the broken lines showing the approximate outline of the watershed and the square spots showing the location of all houses within the drainage area."

Considering the fact that there are so few houses on the watershed, and that these houses are so near the village that the village authorities could easily make regular inspection of them, it is believed that as good results could be obtained by requiring the occupants of these houses to observe certain regulations in regard to the disposal of their sewage, as could be obtained at greater expense with a filtration plant, which in a place of this size would probably have no expert supervision. Furthermore, with a storage of at least three or four months' supply a large amount of purification will take place in the reservoir.

(An analysis of this water may be found in the laboratory report upon water supplies.)

The Board approved the plans, July 16th, 1904, with the following conditions:

A. That the board of trustees of public affairs of Barnesville enforce the following rules and regulations and appoint an inspector whose duty it shall be to inspect the watershed of the reservoir every two weeks, note any violations of said rules and regulations and also all cases of sickness existing upon the watershed.

RULES AND REGULATIONS.

1. Barnesville Reservoir, when mentioned in these rules and regulations, means the reservoir formed by impounding the westerly or Patterson's Fork of Capatina Creek, so called, at a point about one and one-quarter miles south of the southerly corporation limits of Barnesville.

2. No cesspool, privy or other place for the reception, deposit or storage of human excrement, shall be located, constructed or maintained within 50 feet of the high watermark of the Barnesville reservoir, or within 50 feet of the high watermark of any reservoir, lake, pond, stream, ditch, water course or other body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir.

3. No human excrement shall be deposited in or discharged into said Barnesville reservoir or into any reservoir, lake, pond, stream, ditch, water course or other body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir; and no human excrement shall be kept in, deposited in or discharged into any cesspool, privy or other receptacle situated within 250 feet of the high watermark of said Barnesville reservoir, or within 250 feet of the high watermark of any stream or body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir, unless such cesspool, privy or other receptacle is so constructed that no portion of its contents can escape or be washed directly or ultimately into said Barnesville reservoir.

4. No human excrement, or compost containing human excrement, or contents of any privy or cesspool or sewer, or other receptacle for the reception or storage of human excrement, shall be deposited or discharged upon or into the ground at any place from which any such excrement, compost, or contents, or particles thereof, may flow or be washed or carried into said Barnesville reservoir, or into any reservoir, lake, pond, stream, ditch, water course or other body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir.

5. No house slops, sink waste, water which has been used for cooking or washing, or other polluted water, shall be discharged into said Barnesville reservoir, or into any reservoir, lake, pond, stream, ditch, water course or other body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir; no house slops, sink waste, water which has been used for washing or cooking, or other polluted water, shall be discharged into the ground within 50 feet, or upon the ground within 250 feet, of the high watermark of the said Barnesville reservoir, or into the ground within 50 feet, or upon the ground within 250 feet, of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Barnesville reservoir.

6. No garbage, manure, or putrescible matter whatsoever shall be put into said Barnesville reservoir or into any reservoir, lake, pond, stream, ditch, water course or other body of water, the water of which flows or may flow directly or ultimately into said Barnesville reservoir; and no garbage, manure, or putrescible matter whatsoever shall, except in the cultivation and use of the soil in the ordinary methods of agriculture, be put upon the ground within 250 feet of the high watermark of said Barnesville reservoir, or within 250 feet of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Barnesville reservoir.

7. No stable, pigsty, henhouse, barnyard, hog yard, hitching or standing place for horses, cattle or other animals, or other place where animal manure is deposited or accumulates, shall be located, constructed or maintained, any part of which is within 50 feet of said Barnesville reservoir, or within 50 feet of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Barnesville reservoir. No stable or other places, as above enumerated, shall be located, constructed or maintained within 250 feet of the high watermark of said Barnesville reservoir, or within 250 feet of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Barnesville reservoir, unless suitable and adequate provision is made to prevent any manure or other polluting matter from flowing or being washed directly or ultimately into said Barnesville reservoir.

8. No manufacturing refuse or waste products or other substance of a nature poisonous or injurious either to human beings or animals, or other putrescible organic matter whatsoever shall be discharged directly into, or at any place from which it may flow or be washed or carried into said Barnesville reservoir, or into any stream or body of water which flows or may flow directly or ultimately into said Barnesville reservoir.

9. No manufacturing establishment at which there would be created wastes other than ordinary domestic sewage, or at which more than five persons are employed, and no slaughter house or rendering establishment, shall be located upon the watershed of the Barnesville reservoir, unless the State Board of Health is first notified regarding such manufacturing establishment.

10. No hospital for the treatment of contagious or infectious diseases shall be located upon the watershed of the Barnesville reservoir.

11. No person shall bathe in said Barnesville reservoir; and no person shall enter or go in any boat, skiff, raft, or other contrivance on or upon the water of said Barnesville reservoir, nor shall enter or go upon, or drive any animal upon the ice of said Barnesville reservoir without first having obtained permission to do so from the board of trustees of public affairs of Barnesville.

12. If a case of sickness is found by the inspector of the board of trustees of public affairs to exist upon the watershed, the same shall be reported to said board of trustees of public affairs, which Board shall be responsible for the care of the patient with respect to his causing any pollution of the water of the Barnesville reservoir.

B. That the State Board of Health reserve the right to require the introduction of a filtration plant whenever in its opinion it finds that these rules and regulations are not being properly observed, or when the water becomes sufficiently polluted to warrant filtration.

REPORT UPON THE PROPOSED STORAGE DAM AND RESERVOIR FOR COLUMBUS.

At a meeting of the Board held January 20th, 1904, plans were presented for a storage dam and reservoir in the Scioto River, of the gravity type, to be located nearly midway between the Jones and Fishinger dams. The dam was to have a maximum width of base of 64.7 feet, rollway in the center 30 feet above low water in the river and 500 feet in length, with abutments at each side 22 feet higher than the rollway.

These plans were referred to the engineer of the Board, who, at the Board meeting on the following day, made a verbal report to the effect that,

1st. The plans as submitted consisted of five blue prints showing the proposed location of the dam and reservoir, general plan of dam and sluice gates and record of borings showing the character of the rock upon which the dam was to be built.

2d. That the plans for the dam and reservoir did not differ materially from those approved by the Board in June, 1902, the chief difference being the placing of the spillway in the center instead of at the side, as formerly proposed.

3d. That the dam was so solidly proportioned that it would be possible, when future needs required it, to increase its height from an elevation of 30 feet, as proposed, to an elevation of 52 feet above low water, as was proposed by the city and approved by the State Board of Health in 1899.

The Board voted to approve the plans submitted upon the following conditions:

1st. That the ground to be flooded by water by the proposed dam shall be cleaned (a) by removal of all trees and stumps and their branches and roots of an inch or more in diameter, (b) by the destruction of vegetation as far as possible by burning over the area, and (c) by the removal of at least one foot in thickness of the soil upon which houses, barns, hog-pens, or other sources of pollution are, or have recently been located.

2d. That the plans for filtration works be presented to the Board for approval before the completion of the dam.

3d. That the question of issuing bonds for the construction of necessary filtration works be submitted to a vote of the people during the year 1904.

4th. That the Board reaffirm its opinion that the stored water of the Scioto River should not be used without purification.

REPORT ON PROPOSED WATER SUPPLY FOR COVINGTON.

On September 13th, 1904, the clerk of the board of trustees of public affairs of Covington, Mr. J. Guy O'Donnel, applied for the Board's approval of a proposed source of public water supply for that village. The engineer of the Board visited Covington September 21st, to make the necessary investigation. The following report was made:

This village, having a population of about 2,000, is located in Miami County on the easterly bank of Stillwater River near the confluence of this stream with Greenville Creek. It has no public water supply and no sewers.

In order to obtain a ground water supply the village has obtained control of some thirty or forty acres of land located immediately south of Greenville Creek and bordering on the westerly bank of Stillwater River, being on the opposite side of this river from the village. There is no population on this side of the river within sight of the proposed location, and if any pollution reaches the wells located on this land it must come from the village five or six hundred feet distant, beneath the river, through the rock, sand and gravel.

The geological formation is described as follows: The water bearing gravel and sand appear to have been deposited at a time when the river was much larger, the deposit being only a few hundred, or possibly a thousand, feet in extent in any direction, and is bounded and underlaid by limestone or sandstone rock (said to be water-bearing) which appears on the surface at various points.

Five 8-inch wells have been sunk; one being 83 feet deep and the others about 40 feet deep. The material passed through was 15 feet of gravel, then 15 feet of clay, and the remainder a mixture of sand and gravel of very favorable size for furnishing a supply of suitable water. The water stands in the wells about 5 feet below the surface of the ground.

Pumping tests have shown that the wells could be made to yield 200 gallons per minute for short periods; but that not over 150 gallons per minute could be counted on when pumping continuously. The water in the wells was lowered 15 feet during the pumping at the higher rate. When a pumping test was being made on one well the water level in the others was not affected, which shows that the wells have not been placed too near together.

Five wells, pumped continuously at the rate of 100 gallons per minute each, would yield about 700,000 gallons per day; which is ample to supply the needs of the village for a long time.

The pumping station is to be on the opposite side of the river from

the wells (that is, on the same side as the town), the water from which will be raised into a reservoir, the size of which has not yet been decided upon.

It is proposed also to have an emergency intake from Stillwater River for use in cases of fire. The water of this stream receives the drainage from Greenville, Versailles, and possibly other smaller places, and cannot be considered safe for a public supply.

Analyses of samples of water from two of the wells show a water free from organic pollution, though one sample contains a considerable amount of fine sand and suspended clay which no doubt will disappear on continued pumping, or readjustment of the strainer in the well. Even if suspended matter did continue in the water, the storage in the proposed reservoir would give it an opportunity to settle out.

(For a report upon the analyses see laboratory report on water supplies.)

The Board on October 24th, 1904, approved these plans with the exception of the emergency intake into Stillwater River, which was disapproved. The village was advised to build a reservoir of a capacity that would afford sufficient fire protection.

REPORT ON PROPOSED ADDITIONAL OR NEW WATER SUPPLY FOR DALTON.

The mayor of Dalton, Mr. A. Sanderson, November 4th, 1904, applied for the Board's approval of the use of a new well as an additional or new source of public water supply. The following report was made:

Dalton is a village of 666 population, located in Wayne County. A public water supply was installed in 1895, the waters obtained from a deep well and also from a spring located in the town and impounded. It is understood that the latter has not been used to any extent, however.

It is now proposed to increase the present supply, or obtain a new supply, from a well recently driven to a depth of 166 feet, the upper 130 feet being through sand, gravel and fire-clay and the lower through shale and sand-rock. The immediate surroundings of a well of this depth and character do not influence the quality of the water to any extent. The well is located on land owned by the town on Schultz Avenue. It is protected from surface washings and there is no building of any kind within 100 feet. The water overflows through

the top of the well, thus indicating that its source is somewhere at a higher level at some distance from the well itself.

Samples of the water were collected and sent to the laboratory for examination November 29th. The analysis shows the water to be satisfactory from a sanitary standpoint and with the exception of the slight amount of iron which it contains, to be satisfactory for a public supply. (For analysis of these samples, see laboratory report on water supplies.)

The Board approved this source of supply, to be obtained from wells 166 feet deep located on land owned by the village on Schultz Avenue, December 13th, 1904.

REPORT ON WATER PURIFICATION FOR ELYRIA.

In December, 1903, the State Board of Health approved plans for a mechanical filtration plant for the city of Elyria subject to the conditions: That the city employ a competent bacteriologist during the first two months the plant was in operation to make daily analyses and to instruct those in charge in regard to the proper use of coagulant to be employed under various conditions of the raw water; that the Board should reserve the right to require higher standards of efficiency if considered practicable in the future, and that any change in the method of operation or use of coagulant deemed necessary by the Board should be made when desired.

Subsequently, Mr. C. Arthur Brown was employed by the city to make these tests. He submitted a report of detailed tests extending from February 12th, 1904, to April 28th, 1904.

After these tests were completed some complaints as to the pureness of the water supply of Elyria were received and the bacteriologist of the Board was sent there in May. The following is taken from his report:

"Complaints as to the quality of the present water delivered to the city appear to have been based chiefly on its appearance, and that varies in different portions of the system. At the time of my visit to Elyria, water from the main line was nearly clear, showing only a slight haziness, but water from hydrants on side lines showed a water that was discolored by iron or suspended soil to a considerable degree, although it partially cleared up after flowing for some time. See results of sample No. 3659, which was said to be representative of the average to the city. The analysis showed that the objectionable appearance in sample No. 3661 (taken on West Third Street) was due

chiefly to mud, presumably left in the low places of the mains when water from Black River was used. While some effort has been made to clean the pipes, there ought to be hearty co-operation between different departments, and in that way a thorough and systematic flushing of the mains be accomplished for the benefit of the citizens. With no fresh soil entering the mains, that now in them can be reduced to a minimum.

"In sample No. 3662 (taken near the Lake Shore Depot) the sediment was almost entirely iron. Whether the amount of iron shown at some of the hydrants was the result of an improper use or adjustment of the coagulant is somewhat problematical. None of the samples obtained at this time showed any ferrous iron or CaO .

"In considering the influence of this water on health, a bacterial study of the various samples was made, and in no sample of the filtered water from filter, faucet, or hydrant were intestinal bacteria found in 50 cubic centimeter portions of the sample. Colon bacilli were found in 1 cc. of one of the two samples of unfiltered water that were tested for the presence of intestinal bacteria. The absence of intestinal bacteria from the hydrant samples also indicates that the soil in the pipes has been so washed as to probably be free from intestinal bacteria, and is not a menace to health, although objectionable to view. Samples No. 3661 and No. 3662 were taken from the early flow of the hydrants and that water would hardly have been used by a consumer. Omitting those two results, the findings show the water as used at Elyria ranged from 82 to 315 bacteria per cc., with an average of 170 per cc. The figure is higher than desirable and will depend on two factors, efficiency of filtration and pollution from Black River. The latter is likely to be detected by the consumer on account of the appearance of the water, but unfortunately a defective filtration is not so apparent to the eye, and herein lies the greater danger. Safety can only be assured by a careful and intelligent operation of the filters.

"The analyses show that while the Elyria water was not up to the standard of a filtered water, yet at the time of investigation it was a usable water, and may be improved with careful filtration maintained, and with the exclusion of water from Black River.

"It appears that the lake water was in much better condition at this time than during the official test and therefore easier to treat. The effluent from the filters appeared clear if only a small quantity of water was taken, but with a large quantity a haziness was evident. The average number of bacteria in the unfiltered water on May 25th was 600 per cc. The filtered effluents ranged from 17 to 80 per cc., the average of nine samples being 54 per cc. This makes the bacterial efficiency for May 25th, 91.00 per cent., but it is to be noted that the effluent comes within the limit of 'not more than 100 per cubic centimeter' when the raw water has less than 3,000 bacteria per cc.

"On May 26th the average number of bacteria in the raw water was 2,250 per cc., while the filter effluent ranged from 240 to 400 with an average of 332 for five samples. This gives an efficiency of 85.24 per cent. It will be noted that none of the five samples on May 26th came within the maximum allowed of 100 per cc. The average number of bacteria in the effluent during the official test was 148.5 per cc., although the raw water ran much higher in bacteria than it did on the 25th and 26th of May. The results show that satisfactory results were not being obtained on May 26th. The average amounts of lime and sulphate of iron used during the official test were 171 pounds and 385 pounds, respectively, per million gallons of filtered water delivered. The amounts of these materials have been decreased at intervals since the official test, the last drop having been made on May 24th. For some days prior to May 24th the total amounts used were 160 pounds of lime and 500 pounds of iron, equivalent to 106 2-3 pounds and 333 1-3 pounds, respectively, per million gallons of water as the daily pumpage now averages one and one-half million gallons. Since May 24th there have been used 80 pounds of lime and 200 pounds of sulphate of iron per million gallons of water. These figures are equivalent to .56 and 1.40 grains per gallon of water. The amount used now is just about half the average for the official test. At no time during the test was as little iron used and only on March 21-23 was the amount of lime as low as at present used.

"The men at the plant are not instructed as to the conditions under which to increase or decrease either or both of the coagulants. As it is now, the men operating the plant have no means (other than the eye) for determining the turbidity of the water, nor the chemical or bacterial qualities of the raw or filtered water, nor the variation in the quality of the different lots of the chemicals used. It is to be said that those in charge were operating the plant as best they could in the absence of analytical information for guidance, and, as is likely to be the result under those conditions, had erred in reducing the coagulant and had been misled by thinking the appearance of the effluent was a safe criterion for judging the bacterial efficiency. The result, though unintentional, was an improper adjustment of coagulant to the condition of the water and consequently a defective filtration. The difficulties of properly handling the water with iron and lime and without analytical assurance of the exact conditions have not been sufficiently realized."

(For analyses of Elyria water, see report of the laboratory on water supplies.)

A few weeks after this report was made, Dr. Homer D. Williamson, of Lorain, formerly connected with the laboratory of the State Board of Health, was engaged by the city of Elyria to make regular daily

analyses of the raw and filtered water at the Elyria filtration works and to instruct those in charge as to the best methods of operation.

At a meeting of the State Board of Health held June 22d, 1904, the Board approved the filtration plant for Elyria; it being understood, however, that the conditions noted in the Board's former letter of approval, relating to the right of the Board to require high standards of efficiency and to require any change in methods of operation or use of coagulant still remained in effect.

REPORT ON ADDITIONAL WATER SUPPLY FOR FOSTORIA.

On November 28th, 1904, the authorities at Fostoria submitted a plan and asked the approval of the State Board of Health of certain changes in the water works. It was stated that the local board of health had agreed to the proposed changes provided the consent of the State Board of Health was secured. November 29th a letter was received from the board of public service, asking for a report upon the proposed changes. As the question was one which concerned a new intake it required the approval of the State Board before any work was done. The engineer of the Board visited Fostoria December 2d, and the following report was made:

Fostoria has a population of about 8,000. The total water consumption is about 600,000 gallons daily, and is taken from the east branch of Portage Creek about one-half mile south of the city limits. The water is diverted through a system of gates into a canal about three-fourths of a mile long leading to the "Upper Reservoir," which has an area of 12 acres, a depth of 6 feet, and a capacity of 25,000,000 gallons. From this reservoir the water is led through a 3-foot conduit 4,000 feet long into the "Lower Reservoir," which has an area of 18 acres, a depth of 19 feet, and a capacity of 120,000,000 gallons. The upper reservoir is not paved nor was the surface soil removed from the bottom when it was built. The lower reservoir is well built and the sides carefully paved.

The east branch of Portage Creek above the intake canal has a watershed of about 20 square miles, upon which there are probably six or seven hundred people living. At one settlement, West Independence, there are from one hundred to two hundred people. It is decidedly possible therefore that this stream could be polluted by infectious matter.

From the lower reservoir the water flows on to a filter having

an area of 6,300 square feet and composed of some 18 inches of gravel. The water is collected from beneath the gravel by wooden underdrains and conveyed to the pump well and also to a clear water basin, holding some 500,000 gallons. The pump well and the clear water basin together have a storage of about one day's supply.

The filter, so-called, acts simply as a strainer and removes the coarser suspended particles only. It is cleaned about once a year by removing the material and replacing it with new.

An examination, by the chemist of the State Board of Health, last August showed that no removal of bacteria was being effected by this filter. In fact the water as furnished to consumers contained a larger amount of bacteria than the water in the reservoir. As neither contained a very large number, however, at that time, and as no bacillus coli were found, the lack of filtration was not important.

In addition to the above sources of supply there are three deep wells, located near the pumping station, which are used when the water in the reservoirs is low. These wells, however, altogether do not furnish one-half enough water to supply the city. At the time of inspection they were being used in connection with the surface supply.

On account of the inefficiency of the present supply it is proposed to establish a new intake at a point near the present pumping station and a mile and a half or two miles, by following the creek, below the present intake. The reason for establishing this new intake at this point is due to the fact that at a quarry, located somewhere below the present intake, water is constantly being pumped into the creek so that the flow by the pumping station, due to the water from this quarry as well as from the run-off from the upper part of the watershed, amounts to about enough to supply the city without storage.

A dam is to be built in order to raise the water a foot or so and cause it to flow by gravity on to a filter to be similar in construction to the one already in use. After passing through this filter the water will flow into the present pump well.

A few hundred feet above the point where it is proposed to locate this dam, and 150 feet from the creek, is located the Catholic cemetery, which is drained by means of a tile pipe into the creek. The question of proper disposal of this drainage with reference to the proposed new intake is one upon which the local authorities would like an opinion from the State Board of Health, and is in fact the reason for notifying this Board of the proposed plan. As this cemetery is only one of many possible sources of pollution of the creek it is not of itself of special importance, although it would doubtless be better to have this drainage conveyed to a point below the dam. The only safe way, if the proposed plans are to be carried out, is to provide efficient filtration.

Owing to the fact that the reservoirs of the present supply are filled entirely with water from the creek when the latter is clearest (that is, the flood-flows are allowed to pass by the intake gates), the water of the present supply is always clear and could be satisfactorily purified by properly constructed slow sand filters. It is therefore possible that slow sand filters could be used to filter the water direct from the creek when this water is clear, and during freshets the water stored in the reservoirs, which is always clear, could be turned on to the filters in place of the creek water.

Before deciding upon the best method of filtration, however, it is very desirable that all the various points connected with each method should be carefully considered.

The Board approved the plan December 12th, 1904, provided that filters of either the mechanical or slow sand type, of a design satisfactory to the State Board of Health, be constructed before the water from said proposed new intake is delivered to consumers, and that the drainage from the Catholic cemetery be conveyed to a point on the creek below the proposed intake.

REPORT ON PROPOSED WATER SUPPLY FOR FRANKLIN.

The health officer of Franklin, Mr. John B. Miller, submitted plans for a new source of public water supply for that village and asked the Board's approval. The engineer visited Franklin September 29th, 1904, and inspected the proposed location. The following report was made.

Franklin is a village of about 3,000 inhabitants, located on the Great Miami River in the northwesterly corner of Warren County.

The public supply, which was established in 1887, has been derived from wells near the southerly part of the town on the east side of the river. But these wells, last August, were seriously affected by new and deeper wells placed near them by a manufacturing concern; so that it was necessary to obtain a new supply. About October 1st, the authorities, therefore, connected three abandoned wells, located in the northerly part of the village on the east side of the river, with the water works system; and after receiving approval of the State Board of Health for their temporary use, these wells were used and are now being used to supply the village.

In order to obtain a new and permanent well supply in an unobjectionable location, the village then proposed to purchase land on

the "Barklow Lot," on the west side of the river, and use it for water works purposes.

The Barklow Lot is approximately 800 feet by 1,000 feet and contains about nine acres, though it is proposed to buy only as much land as is necessary. It is bounded on the east by the highway, about 75 feet beyond which is the river; on the south by the high embankment of the Cincinnati Northern Railroad, 200 to 300 feet beyond which is a house and barn; on the west by the west corporation line of the village, beyond which there are a few houses, but none very near the boundary line; and on the north there are a few houses within several hundred feet of the lot. The territory on the west side of the river is not thickly built up and it is estimated that not over 500 people, or one-sixth of the population of the village, live on this side. It would be desirable to buy the entire lot, however, both to protect the quality of the water in the future and to prevent the failure of the supply by allowing other wells to be located too near, as was the case with the former supply.

One test well, 10 inches in diameter, has been sunk to a depth of 61 feet. The water rises in the well to within 14 feet of the surface. The material passed through was a few feet of soil and the remainder gravel, of excellent quality for yielding water. The well has been pumped 24 hours, at a rate of 200 gallons per minute, without lowering the level of the water. This would indicate that with possibly another well or two a sufficient supply for the village can be obtained.

The quality of the water, as shown by the chemical analysis, is satisfactory. (See report of the laboratory on water supplies for analysis of this water.)

The Board, on November 21, 1904, approved the location known as the "Barklow Lot," situated in the extreme westerly part of the corporation and immediately north of the Cincinnati Northern Railroad, for public water supply purposes provided the entire area of about nine acres be controlled by the village, and that in the future no wells be located within 200 feet of the southerly, westerly or northerly boundaries of said lot.

REPORT ON PROPOSED ADDITIONAL WATER SUPPLY FOR LISBON.

The health officer of Lisbon, Mr. David H. Eells, November 5th, 1904, applied for the Board's approval of an additional or new source of water supply, and submitted plans and samples of the water.

The plans were referred to the engineer of the Board, and the following report was made:

Lisbon is a village of about 3,000 population, located in Columbiana County. It has had water works for the last fifty years, the water being taken from Beaver Creek during that time except that in 1887, and also two years ago, attempts were made to procure a ground water supply, but both of these attempts failed through a lack of sufficient available quantity.

"The creek at this point is badly polluted by the sewage from both Salem and Leetonia, and it is very desirable that the use of the creek water for a public supply be discontinued.

"The proposed wells, four or more in number, are located near the present pumping station and near the bank of the creek. From the plans submitted, and also from information sent in by the health officer, it appears that there are no sources of pollution near by. Furthermore the wells are 115 feet deep, most of this distance being through rock. The water can be classed as a deep well water and is probably not influenced by the surroundings immediately over the wells, especially as they are tightly cased and protected from surface pollution.

"The chemist's analysis shows the water to be safe for a public supply, although some of its physical features are not satisfactory. Altogether the use of the water from these wells would be a decided improvement over the use of the creek water." (For analysis of this water, see laboratory report on water supplies.)

This supply, to be obtained from wells 115 feet deep, located near the present pumping station and near the bank of Beaver Creek, was approved by the Board December 3d, 1904.

REPORT ON WATER PURIFICATION FOR MARIETTA.

The president of the board of public service of Marietta, Mr. J. H. Riley, submitted plans and specifications for the Board's approval of a water purification works for that city. These were referred to the engineer of the Board and the following report was made:

Marietta at present takes her water supply directly from the Ohio River and pumps it to two tanks having a combined capacity of 1,500,000 gallons, or about one day's consumption. The water is turbid at all times and is unsatisfactory for a public supply.

The plans are drawn by the Norwood Engineering Company, of Florence, Mass., and provide for the construction of a complete mechanical filtration plant, including all necessary pumps and other apparatus, and also a laboratory.

The filters as well as the coagulating basin, clear water well and chemical tanks are to be of concrete, re-enforced with steel rods, which construction has been successfully used in at least one other similar, but much larger, plant.

The coagulating basin is 75 feet by 49 feet and 20 feet deep, thus giving a capacity of about 500,000 gallons. The coagulant is to be introduced into the force main near the pump so that it will be well mixed with the water before reaching the coagulating basin and the current through this basin is so directed by baffle walls that a still further mixture takes place and the conditions are made favorable for obtaining as much sedimentation as possible.

Provision is made for the use of either sulphate of iron or sulphate of aluminum.

The filters are eight in number, each consisting of a rectangular concrete box 20 feet by 10 feet, in which is placed 9 inches of graded gravel and 3 feet of sand having an effective size of about 0.45 mm. and a uniformity coefficient of not less than 1.5. Under this filtering material is the strainer system, resting upon the concrete floor of the filters. A separate system of air pipes is proposed so that in washing the sand currents of water and air are sent through simultaneously, thus, it is said, effecting a saving in wash water.

A clear water reservoir, holding about 200,000 gallons, for the storage of filtered water is located directly beneath the filters.

The following guarantee is made by the filter company:

"We guarantee an average removal of 98 per cent. of all organisms in the applied water when same contains 3,500 or more per cc. When

the applied water contains less than 3,500 the filtered water shall not contain more than 75 per cc.

"When the bacteria in the raw water exceed 3,500 per cc. not more than 5 per cent. of the samples from the whole plant, not more than 10 per cent. of the samples from a single filter, shall show a reduction of less than 90 per cent., as compared with the raw water. When the number of bacteria in the raw water is less than 3,500 not more than 5 per cent. of the samples from the whole plant, nor more than 10 per cent. of the samples from a single filter, shall show more than 100 bacteria per cc. in the filtered water. The filtered water will be free from odor, will be bright and clear and free from matter in suspension and color visible to the naked eye. The filtered water shall contain no undecomposed coagulant and no more iron or alum than the applied water. It shall not show an acid reaction nor an alkalinity greater than the raw water. The wash water shall not exceed 5 per cent. of the water filtered."

The Board approved the plans for a water purification plant for the city of Marietta, July 25th, 1904, as submitted by the Norwood Engineering Company of Florence, Mass., with the condition that if a change in the use of the coagulant, or in the method of operating the plant, be deemed advisable by the State Board of Health, it should be made without unnecessary delay.

The Board also suggested that a definite arrangement regarding an official test be made before the work was begun, in order that the terms of the guarantee made by the filter company be fully carried out.

REPORT ON ADDITIONAL WATER SUPPLY FOR MT. VERNON.

The secretary of the water works department of Mt. Vernon wrote that they were proposing to increase their water supply by putting down an additional well, 100 feet west of their present water supply and 100 feet from the Kokosing River. A sample of the water from the new well was collected by the superintendent of the water works, in the presence of witnesses, and shipped to the laboratory for examination. (For a report upon this analysis, see laboratory report upon water supplies.)

The results of the analysis showed the water to be of good quality and quite similar to the supply already in use, and the Board approved the same as an additional supply June 29th, 1904.

REPORT ON PROPOSED WATER SUPPLY FOR NEW LONDON.

The Riggs and Sherman Company made application on September 23d, 1904, for the Board's approval of a proposed water supply for New London. The engineer of the Board visited that village October 3d, 1904, to make the necessary investigation. The following report was made:

The village of New London is located in Huron County and has a population of about 1,500. There is no public water supply at present, although the Big Four Railroad Company and one or two factories have deep wells from which a considerable amount of water is pumped.

It is proposed by the consulting engineers to impound a small stream, Bonnie Creek, which flows in a northwesterly direction and has, above the village, a watershed of about 2,100 acres of cultivated, pasture and grass lands, located immediately southeast of the village. The dam is to have a maximum height of about 20 feet and would be located at the southeasterly limits of the corporation.

Upon the 2,100 acres of watershed above the site of the proposed dam are about a dozen houses, four of which are located within a few hundred feet of the stream. The stream itself is dry, it is said, except during and immediately after heavy rains, though actual data are not available on this point.

It was dry when visited and had been for a long time. Near its upper portion the channel takes the form of a ditch, extending along the roadside for several hundred feet. It also extends for some distance through pasture land.

The capacity of the reservoir would be 60,000,000 gallons and the area of water surface would be about 20 acres. The engineers estimated the daily consumption at 300,000 gallons per day, which includes 100,000 to be furnished to the railroad company.

The evaporation from a surface of 20 acres, based upon the Fitzgerald formula and also upon information informally furnished by Mr. J. Warren Smith, Section Director of the United States Bureau, would average about 60,000 gallons daily. Adding this amount to 300,000 gallons, the capacity of the reservoir would equal five or six months' supply for the village. It is probable that during any five consecutive dry months at least 8 inches of rain would fall, and if 5 per cent. (which is a fair proportion, based upon the runoff of dry months, of the Scioto and Olentangy Rivers) of this rainfall reaches

the reservoir it would mean about 20,000,000 gallons, or two months supply, which would go far in sustaining the supply until rainy weather.

In regard to quantity, then, the supply obtained by impounding this stream would be sufficient for the needs of the village immediately and for some time in the future. As to such a supply being sufficient to meet any large growth of the village, the information regarding the flow of the stream is not definite enough to allow a positive opinion to be formed.

The quality of the water could not be examined as there was no water to sample at the time of inspection. From the nature of the watershed, this stream, when running, would be extremely turbid and the extent to which it would be clarified and improved by sedimentation is difficult to state.

No thorough investigations regarding the practicability of procuring a ground water supply for the village have been made. The well of the Big Four Railroad Company is said to be hard for boiler use and the supply from this well is said to be limited to about 100,000 gallons daily.

The water from two wells southwest of the village, in a location favorable for a public supply, has been analyzed by the chemist of the State Board of Health. Both of these wells show a safe water for domestic use and though one of them is not adapted for boiler use, the other is very suitable for such use. No information as to the yield of these two wells is available, however.

At a meeting of the State Board of Health, held October 20th, 1904, these plans, submitted by The Riggs & Sherman Company, engineers, were considered and this source of supply was approved upon the following conditions:

A. That the board of trustees of public affairs of New London enforce the following rules and regulations and appoint an inspector whose duty it shall be to inspect the watershed of the Bonnie Creek reservoir every two weeks, and report to said board of trustees of public affairs any violation of said rules and regulations and also all cases of sickness existing upon the watershed of said reservoir.

RULES AND REGULATIONS.

1. Bonnie Creek Reservoir, when mentioned in these rules and regulations, means the reservoir formed by impounding Bonnie Creek at a point near the south east limits of the village of New London, Ohio.

2. No cesspool, privy or other place for the reception, deposit or storage of human excrement, shall be located, constructed or maintained within 50 feet of the high watermark of the Bonnie Creek reservoir, or within 50 feet of the high watermark of any reservoir, water course or other body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir.

3. No human excrement shall be deposited in or discharged into said Bonnie Creek reservoir, or into any reservoir, water course or other body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir; and no human excrement shall be kept in, deposited in or discharged into any cesspool, privy or other receptacle situated within 250 feet of the high watermark of said Bonnie Creek reservoir, or within 250 feet of the high watermark of any stream or body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir, unless such cesspool, privy or other receptacle is so constructed that no portion of its contents can escape or be washed directly or ultimately into said Bonnie Creek reservoir.

4. No human excrement, or compost containing human excrement, or contents of any privy or cesspool or sewer, or other receptacle for the reception or storage of human excrement, shall be deposited or discharged upon or into the ground at any place from which any such excrement, compost or contents, or particles thereof, may flow or be washed or carried into said Bonnie Creek reservoir, or into any reservoir, water course or other body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir.

5. No house slops, sink waste, water which has been used for washing or cooking, or other polluted water, shall be discharged into said Bonnie Creek reservoir, or into any reservoir, water course or other body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir; no house slops, sink waste, water which has been used for washing or cooking, or other polluted water, shall be discharged into the ground within 50 feet, or upon the ground within 250 feet, of the high watermark of the said Bonnie Creek reservoir, or into the ground within 50 feet, or upon the ground within 250 feet, of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Bonnie Creek reservoir.

6. No garbage, manure, or putrescible matter whatsoever shall be put into said Bonnie Creek reservoir or into any reservoir, water course or other body of water, the water of which flows or may flow directly or ultimately into said Bonnie Creek reservoir; and no garbage, manure, or putrescible matter whatsoever shall, except in the cultivation and use of the soil in the ordinary method of agriculture, be put upon the ground within 250 feet of the high watermark of the said Bonnie Creek reservoir, or within 250 feet of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Bonnie Creek reservoir.

7. No stable, pigsty, henyard, barnyard, hog yard, hitching or standing place for horses, cattle or other animals, or other place where animal manure is deposited or accumulates, shall be located, constructed, or maintained, any part of which is within 50 feet of said Bonnie Creek reservoir, or within 50 feet of the high water mark of any stream or body of water which flows or may flow directly or ultimately into said Bonnie Creek reservoir. No stable or other places, as above enumerated, shall be located, constructed or maintained within 250 feet of the high watermark of said Bonnie Creek reservoir, or within 250 feet of the high watermark of any stream or body of water which flows or may flow directly or ultimately into said Bonnie Creek reservoir, unless suitable and adequate provision is made to prevent any manure or other polluting matter from flowing or being washed directly or ultimately into said Bonnie Creek reservoir.

8. No manufacturing refuse or waste products or other substance of a nature poisonous or injurious either to human beings or animals, or other putrescible organic matter whatsoever, shall be discharged into, or at any place from which it may flow or be washed or carried into said Bonnie Creek reservoir, or into any stream or body of water which flows or may flow directly or ultimately into said Bonnie Creek reservoir.

9. No manufacturing establishment at which there would be created wastes other than ordinary domestic sewage, or at which more than five persons are employed, and no slaughter house or rendering establishment, shall be located upon the watershed of

the Bonnie Creek reservoir, unless the State Board of Health is first notified regarding such manufacturing establishment.

10. No hospital for the treatment of contagious or infectious diseases shall be located upon the watershed of the Bonnie Creek reservoir.

11. No person shall bathe in said Bonnie Creek reservoir; and no person shall enter or go in any boat, skiff, raft, or other contrivance on or upon the water of said Bonnie Creek reservoir, nor shall enter nor go upon or drive any animal upon the ice of said Bonnie Creek reservoir without first having obtained permission to do so from the board of trustees of public affairs of New London.

12. If a case of sickness is found by the inspector of the board of trustees of public affairs to exist upon the watershed, the same shall be reported to said board of trustees of public affairs, which board shall be responsible for the care of the patient with respect to his causing any pollution of the water of the Bonnie Creek reservoir.

B. That the State Board of Health reserve the right to require the introduction of a filtration plant in case it finds that these rules and regulations are not being properly observed, or if the water proves to be of such quality as to warrant filtration.

REPORT ON PROPOSED ADDITIONAL WATER SUPPLY FOR PLAIN CITY.

The authorities of Plain City asked the Board's approval of an additional water supply to be obtained from an artesian well 377 feet deep and representing practically the same supply as was then in use, July, 1904.

Samples of the water were sent to the laboratory for examination and the results showed a ground water deep in origin, and one relatively free from bacteria and other organic matter, though considerably harder than previous samples examined in June, 1903. (For a report upon these samples, see laboratory report on water supplies.)

The analysis indicating that the water proposed as an additional supply was of such quality as would be satisfactory for drinking purposes, the Board approved the same July 28th, 1904.

REPORT ON PROPOSED WATER SUPPLY FOR NEWARK.

Plans for a water supply for the city of Newark were submitted to the State Board of Health at its June meeting, by Mr. J. P. Lamb, president of the board of public service, and Mr. L. E. Chapin, the consulting engineer. Action was deferred until the engineer of the Board made an investigation of the watershed involved.

The following report was made:

The city of Newark, although already supplied with water by a private corporation, is about to issue bonds which have been authorized by popular vote, for the construction of a new municipal water works. The source of supply for the new works is to be the North Fork of the Licking River at a point just above the present intake used by the water company. The filtration plant is now owned by the water company, but is used only during a few days of the year when the water is especially turbid.

No plans for purifying the water except a proposed reservoir holding one to two days' supply have been included in the plans submitted, and the present bond issue is not sufficient to pay for a filtration plant. The watershed of the North Fork of the Licking River above Newark contains some 230 square miles and is covered in part by uninhabited woodland and in part by sparsely settled farm land containing isolated farm houses and several small communities as mentioned below. The stream is fed by a large number of small tributaries originating in springs coming from the gravelly hills around the outer part of the watershed.

The watershed is located principally in Licking County, but includes also a part of Knox County. The following communities are located upon it:

TOWN.	POPULATION.
Appleton.....	110
Brandon.....	200
Centerburg.....	1,000
Chatham.....	300
Croton.....	400
Fredonia.....	150
Hartford.....	300
Homer.....	400
Hunt.....	100
Milfordton.....	25
Mt. Liberty.....	200
Newway.....	175
Norman.....	150
St. Louisville.....	300
Utica.....	1,400
Vanatta.....	100

At Utica, which is the largest community, there are three drains which discharge domestic sewage into the stream, while it is proposed to discharge more sewage in the near future as the village is growing rapidly and about fifty houses will be built this season. There are also two surface drains at this place. Furthermore the stream runs directly in the rear of about a dozen stores and houses, from which it receives more or less refuse and rubbish, if not sewage. Two slaughter houses just below the village are so located that the drainage may reach the stream in time of rain.

The remaining settlements, although not provided with sewers, are nearly all located upon or near one of the numerous tributaries of the river and the drainage from privies and barnyards may find its way at times into the main stream.

Several isolated houses are also located upon small feeders of the river.

The water from the river just above Newark has been analyzed by the Board and found to be unsatisfactory for a public supply. Also there is always danger of pollution from one of the communities or from isolated farm houses; and this danger, judging from causes of epidemics in the past, is sufficiently great to warrant the installation of purification works.

The plans were approved by the Board July 1st, 1904, provided the water be purified in a manner satisfactory to the State Board of Health before being offered to consumers.

REPORT UPON PROPOSED WATER SUPPLY FOR VERMILION

The first plans for a water supply for the village of Vermilion, submitted by the consulting engineer, Mr. L. E. Chapin, in November, 1903, provided for the use of the Vermilion River as a source of supply; the water to be treated by mechanical filtration, and the degree of purification to be specified by the State Board of Health. These plans were approved December 22d, 1903, with the following conditions:

- 1st. Subject to such future requirements as regards the operation of the plant as may be found necessary by the State Board of Health.
- 2d. That the Board does not formally approve of sulphate of iron as a coagulant, though permission is given to temporarily make use of it for such purpose.

On February 3d, 1904, the village authorities, fearing a repetition of the Butler, Pennsylvania, epidemic, and also for ethical reasons, being prejudiced against the use of the river water, asked the State Board of Health to approve a supply to be obtained from Lake Erie upon the following conditions:

1st. By constructing a covered supply basin, 30 feet inside diameter by 16 feet in depth below the lake level. Such basin to have a sufficient number of 2-inch iron pipes laid through the walls on the lake side only, through which to draw the gravel water supply, from the level of the shale rock. In case such gravel supply so obtained should at any time, upon examination by the State Board of Health, be found not suitable for a supply with or without filtration, on notice thereof from said Board the village would discontinue such supply by plugging all of such holes.

2d. Should the quality of the supply so determined, or the quantity so obtained be not suitable, or insufficient for the needs of the village, in either case a 1,200-foot long intake, out into the lake, would be laid to a point 1,200 feet west of the Government pier and the supply taken from that point.

3d. In either case a filter plant for the future purification of such waters will be constructed and operated.

The Board approved such plans March 21, 1904, providing for the collecting of water from the gravel beneath the bottom of the lake, upon the condition that the proposed supply or collecting basin be constructed of such form that it might be enlarged and used as a sedimentation basin holding 160,000 gallons, if it were found that the use of water direct from the lake was necessary, and also upon the condition that completed plans be filed with the Board.

It was later decided to construct the intake 1,200 feet into the lake in any case; and not depend upon the ground beneath the lake for a source of supply, and at a meeting of the State Board of Health held June 22, 1904, four completed drawings and specifications for an intake pipe and crib, for a receiving and sedimentation basin holding 80,000 gallons, and for a mechanical filter plant to be built by the Pittsburgh Filter Manufacturing Company, and for the laying of suction and supply lines, were submitted. Clause 17, of the guarantee of the filter company, was as follows: "Efficacy: Shall be such as will meet with the approval of the Ohio State Board of Health, and with all possible conditions of raw water will deliver filtered water free from sediment, color or odor." Provision was made for the use of either alum or copperas and lime as coagulants.

The Board approved these plans, July 2d, 1904, upon the following conditions:

1st. That an additional 80,000 gallon sedimentation basin, as indicated on one of the plans submitted, be built at such a time as the Board may deem necessary.

2d. That the following guarantee be obtained from the filter company, this being the same that was proposed by the consulting engineers in their first application: "The resulting water shall be clear, odorless, free from turbidity, and from all matters in suspension as seen by the naked eye, and the removal of bacteria shall not be less than 98 per cent. in water containing 3,000 or more per cubic centimeter, and when the applied water shall contain less than 3,000 bacteria per cubic centimeter, the efficiency shall be such that not more than 100 bacteria shall be found in the filtered water."

3d. The filter plant shall be subject to such future requirements as regards the operation of the plant as may be found necessary by the State Board of Health; and,

4th. That the Board does not formally approve of sulphate of iron as a coagulant, though permission is given to temporarily make use of it for such purpose.

REPORT ON PROPOSED WATER SUPPLY FOR WAYNESBURG.

On March 25th, 1904, the Board approved plans for a public water supply for Waynesburg, a village of 800 inhabitants located in the southeast corner of Stark County. This supply was to be obtained from drilled wells located near Big Sandy Creek, 500 feet north of the edge of the village and separated from the village by a small run.

Owing to the relatively large amount of iron in the water of these wells the village authorities decided that they did not wish to use them and asked the Board's approval of a supply to be obtained from two wells, 150 feet deep, located in the southeasterly part of the corporation, upon a three acre lot already controlled by the village. These wells were located on a side hill and there were no houses about them.

Samples of the water were collected and sent to the laboratory by the consulting engineers, Messrs. Chapin and Knowles. The water was found to be in nearly every respect much inferior to the supply already approved, while the suspended matter and iron made it undesirable for a public supply. (For a report of this analysis see laboratory report on water supplies.)

In view of the inferior quality of the samples of this supply examined, the Board disapproved the plans October 24th, 1904.

It was thought possible that future pumping of the wells might improve the quality of the water and the Board advised that this be done and additional samples analyzed.

REPORT ON PROPOSED WATER FILTRATION FOR YOUNGSTOWN.

At a meeting of the State Board of Health, held January 20th, 1904, plans and specifications for a filtration plant for the city of Youngstown were presented for approval and explained by the city engineer, Mr. F. M. Lillie.

The plans consisted of nine drawings showing location, general and detailed plans of the proposed plant. The location proposed was on the easterly bank of the Mahoning River, in the northeasterly portion of the corporation, nearly opposite the present pumping station. The raw water was to be taken, as formerly, from the Mahoning River.

The plans provided for 12 concrete rectangular mechanical filters of the gravity type, each 21 feet by 16.6 feet and containing 3 feet, 9 inches of filtering material. The normal total capacity of the plant was to be 10,000,000 gallons per day, or a yield of 833,000 gallons per day for each filter. This meant a rate of filtration of 125,000,000 gallons per acre per day.

The sedimentation and coagulating basin was to hold 1,200,000 gallons, or three hours' supply when the plant was running at its full capacity.

The clear water reservoir was to be a covered circular reservoir, 84 feet in diameter and 20 feet deep, holding about two hours supply.

The specifications stated that the contractor who built the plant should guarantee the following results:

"1st. The filtered water will be free from odor, will be bright and clear and free from matter in suspension and color visible to the naked eye.

"2d. When the number of bacteria in the raw water exceed 3,500 per cubic centimeter, there shall be an average reduction of the bacteria in the filtered water from the whole plant in use of 98 per cent. When the raw water contains less than 3,500 bacteria per cc. the average number of bacteria in the filtered water from the whole plant in use shall not exceed 75 per cc. When the bacteria in the raw water exceed 3,500 per cc. not more than 5 per cent. of the samples from the whole plant nor more than 10 per cent. of the samples from a single filter shall show a reduction of less than 90 per cent. as compared with

the raw water. When the number of bacteria in the raw water are less than 3,500 not more than 5 per cent. of the samples from the whole plant nor more than 10 per cent. of the samples from a single filter shall show more than 100 bacteria per cc. in the filtered water.

"3d. The filtered water shall contain no undecomposed coagulant and no more iron or aluminum than the applied water. It shall not show an acid reaction nor an alkalinity greater than the raw water.

"The contractor shall fulfill all rules and requirements of the State Board of Health."

The filters were to be washed by the usual method of forcing a reverse current of water backward through the underdrains and filtering material. To assist in washing, the sand was to be agitated by means of compressed air.

The plans as submitted showed a separate system of pipes for the application of the compressed air. In similar plants the strainer system is used for this purpose. It was not the intention, however, to compel the contractor to strictly adhere to this portion of the plans but to allow him to use whatever design of strainer system and air pipes he might think best.

The Board, at its meeting held April 27th, 1904, approved these plans subject to the following conditions:

1. That any change made in the plans presented be submitted to and approved by the State Board of Health prior to the construction of the filters.

2. That the purification plant should show during a reasonable trial period a bacterial efficiency not less than that called for on pages 3 and 4 of the copy of specifications filed with the plans.

3. That a chemical and bacteriological laboratory be made a part of the plant, and the filtered water be properly examined daily so long as the Mahoning River is made use of as a public water supply for the city.

Later the city engineer of Youngstown submitted a blue print showing a strainer system different from that on the plans approved.

Both the system first proposed and the system proposed later provided for the washing of the sand by the introduction of air and water at the bottom of the sand layer. The difference, however, in the two schemes was that the first contained two sets of pipes, one for air and one for water, while the system proposed later contained only one set of pipes which was to be used for both air and water alternately.

The Board was informed that the latter scheme was in successful operation at the Little Falls, N. J., plant, reputed to be the largest and best plant of its kind in the country, and although more wash water might be required than would be the case with the first system, the latter was cheaper to install and perhaps easier to take care of.

At a meeting of the Board, held October 20th, 1904, this change in design of the strainer system at the Youngstown filter, namely, the system to contain only one set of pipes to be used for both air and water alternately instead of two sets of pipes as previously proposed, was approved.

REPORT ON PROPOSED WATER SUPPLY FOR ZANESVILLE.

The board of public service of Zanesville made application for the Board's approval of a new source of water supply, both as to quality and quantity. The engineer of the Board visited Zanesville May 23d, and the following report was made:

The city of Zanesville is now supplied with water taken direct from the Muskingum River. For a large portion of the time this water is extremely muddy and is unfit for domestic use aside from the large amount of sewage pollution which it receives from the cities, villages and public institutions located upon its various tributaries. The daily consumption is over 5,000,000 gallons per day, which is far too great for a city of 25,000 population. This is due to the non-use of meters, and also to the fact that the people waste much water in the hope of obtaining clear water by leaving the taps running.

In 1900 the city took preliminary steps toward securing a supply from the gravel deposit on the westerly bank of the Muskingum River just above the city. This supply was approved by the State Board of Health, but was never developed.

It is now proposed to obtain a supply from one of the series of gravelly plains which border on the easterly bank of the river and extend with varying width for many miles above the city. The plain in question is immediately north of the city limits, is about two miles long and varies in width from practically nothing to 1,500 feet. By reason of its low elevation and liability to overflow, it is uninhabited though covered with cultivated fields and pastures. There are a few scattered houses on the highlands adjacent to this plain, but the built-up portion of the city is over a mile from the proposed location for the wells and does not drain toward it.

About May 1st, 1904, three test wells were driven, all within a few hundred feet of the river bank and about 40 feet deep, the upper 12 feet being clay and the remainder sand and gravel of excellent quality. The elevation of the water in them was about the same as that of the river at the time, i. e., 10 feet below the surface.

The water in these wells was examined after a short pumping test. Well No. 3, located at the extreme southerly end of the plain, where the latter is very narrow, proved to be unsatisfactory; but wells No. 1 and No. 2, located 3,500 and 2,500 feet, respectively, north of No. 3, showed water of a very good quality.

Before deciding definitely upon this location it was decided to make a pumping test of one of the wells in order to gain information regarding the available quantity of water, and also to determine whether the quality changed as the water was drawn from the well.

Your engineer visited Zanesville and made certain suggestions to the city authorities regarding the best method of making pumping tests. These suggestions were carried out only in part; the observation wells were not placed as suggested, for which reason the area affected by pumping cannot be defined, and the pump used was of insufficient size to enable one to judge of the ultimate capacity of the well pumped. As the actual quantity pumped during the test was only one-sixth to one-tenth of the supply necessary for Zanesville, and as we do not know to what extent the gravel deposit was taxed in order to furnish this amount, we are not in a position to state with certainty whether there is enough water in this gravel nor can we state the proper distance which the wells should be placed from each other.

Looking at the situation in a general way, however, and with the information at hand, it would seem that enough water could be obtained to supply Zanesville for a few years at least; also that the water will be drawn to a large extent, if not entirely, from the land side rather than from the direction of the river. The chemical analyses further prove this last statement. The slight increase in organic matter and chlorine since May 12th may be due to the extensive cultivated fields adjacent to the test well.

(For a report upon this water see laboratory report on water supplies.)

Considering the fact that a new pumping station and machinery are necessary in any case, and that with any system of filtration it would be desirable to locate the intake, and hence the filtration plant, well above the present pumping station, it would seem that no money would be wasted if the works were constructed as proposed and the wells abandoned, if need be, within a few years; because the principal cost of the work is due to the pumping station and force main which is necessary now and would be necessary with a filtration plant. The wells themselves are comparatively inexpensive and probably would not cost more than a few years' interest and operation charges of a filtration plant.

The Board approved this supply on July 20th, 1904, and also recommended that the pumping station be so designed that it might

be made a part of the future filtration plant and so located that an intake, into the Muskingum River at a point above all pollution from the city, could be constructed economically should it be necessary in the future to resort to the river for a supply. The Board also recommended the installation of water meters as a desirable and economical measure.

SEWERAGE AND SEWAGE
DISPOSAL.

REPORT UPON PROPOSED SEWERAGE FOR BATAVIA.

The mayor of Batavia, Mr. Edwin C. Ely, submitted plans for a proposed sewer for that village and asked the Board's approval. The plans were submitted to the engineer of the Board, and the following report was made:

In August, 1903, the village asked for advice from the Board with reference to building a sewerage system, although no definite plans were presented at that time. The engineer visited Batavia, made an examination of existing conditions and submitted a report, the conclusions of which were sent to the mayor of the village. These conclusions were as follows:

1st. The discharge of sewage at the point desired, near Wood Street, would undoubtedly create a nuisance and should not be allowed under any circumstances.

2d. The ordinary dry weather flow of the river is not sufficient to satisfactorily dilute the sewage of the population of the village.

3d. It is possible that the sewage during the next two or three years, if, as is claimed, there are no more than one hundred people connected with the system, may be discharged into the middle of the pond several hundred feet below the built-up part of the village without causing any nuisance to the inhabitants thereof or to the farmers below.

4th. Purification works must at some time be provided for the village and there appears to be suitable filtering material nearby.

5th. Combined sewers, as proposed, should not be constructed, but there should be built instead, a separate system consisting of sanitary sewers, properly ventilated and provided with flush tanks and underdrained in wet ground, together with storm sewers where necessary. The latter may be made to serve as drains for the wet ground also.

Funds not being available to construct an entire system, it is now proposed to replace an old 5-inch cellar drain located in Main Street, which drain has been obstructed by a growth of roots, with a 10-inch drain, 2,100 feet in length, built with tight joints. The proposed drain or sewer is to be used principally for cellar drainage, as the people living along this street are much annoyed in wet weather by the flooding of cellars. It is also intended to connect the drainage from five bathtubs, but from no water-closets nor sinks.

This drain is to discharge into the river a short distance west of the foot of Main Street, at a point where a sewer used by five or six houses already discharges. This sewer when inspected last August

was causing some pollution of the river, in which the flow was then very small, but it was impossible to state whether any odor arising from this discharge could cause a nuisance for the reason that a pig-pen, located very near the outlet, caused a much greater odor than could come from the sewage.

It is stated in the application that when the village is in a position to construct a sewerage system this proposed sewer will be made a part of it. The discharge of cellar drainage together with the waste from five bath tubs would not make the present conditions any worse nor cause complaint.

This report was presented to the Board at its meeting held April 27th, 1904, and the plans, with outlet into the river a short distance west of the foot of Main Street, were approved upon the condition that the sewer be used for cellar and bathtub drainage only. The Board also called the attention of the authorities to the fact that when a general system of sewers is built for the village it will probably be necessary to build purification works; and in view of this fact it would be better to have one set of small pipe sewers for house waste only and other sewers where necessary for cellar or storm drainage.

REPORT ON PROPOSED SEWER AT BEACH PARK.

In a letter dated November 19th, 1904, Dr. J. R. Pipes, the health officer of Avon Township, Lorain County, in which Beach Park is located, requested the approval of the State Board of Health of a proposed sewer which was to be built and paid for by a number of private families. The engineer of the Board visited Beach Park December 7th, 1904, and looked over the ground with Dr. Pipes. The following report was made:

Beach Park is a small settlement on the shore of Lake Erie about seven miles east of Lorain. The population is not over 150. At the present time there is a 6-inch drain extending through the main street and discharging through an open ditch, 100 or more feet long, on to the shore of the lake. This drain receives cellar drainage, barn-yard drainage and sink drainage besides having connection with one water-closet. It is understood that the reason for the existence of the open ditch is that certain residents have already begun to take up the old drain with the intention of laying a new one in the same trench, but were stopped by an injunction brought by a property holder who was opposed to having sewage discharged into the lake at this point.

A few hundred feet west of the main street is the power house for

the Lake Shore Electric Railway, at which there is a sewer outlet through which drainage from the power house and water-closet located in the car barns is discharged.

Directly opposite this latter point and, it is said, 1,500 feet out into the lake (though this distance is probably much less) is the intake pipe for the power house. Through this intake water is also supplied to the residents of Beach Park, who haul it from the power house in tanks, and also to the transient population at the pavilion and recreation grounds at this place. This latter population may amount to two or three thousand in a day. It is said that the recreation grounds are supplied with dry closets and do not discharge sewage into the lake.

It is proposed to replace the old sewer by a new one, 10 inches or more in diameter, and discharge it at the foot of the main street on to the shore of the lake. This sewer will be used by about seven families. As water and ice are hauled from the lake at this point, and as water is taken from a point farther out in the lake through the intake above described, it is undesirable that the proposed plans be carried out. The discharge of unpurified sewage should not be allowed anywhere along the beach in the vicinity of Beach Park.

The Board was not willing to allow the discharge of unpurified sewage along the beach in the vicinity of Beach Park, and the sewer was approved only upon the condition that two sand filter beds, each about 30 feet square and of a design satisfactory to the State Board of Health, be constructed and the sewage passed through these beds before being discharged into the lake. This action was taken December 13th, 1904.

The Board also suggested that these filters be located near the power house and that the present sewer at that place be also connected with them; and that if it could be arranged, it would be very desirable to have the sewage discharge on to these sand filters intermittently, by means of a small flush tank; and that street wash should not be admitted to the proposed sewers, but should be taken care of by means of ditches.

REPORT ON A PROPOSED SEWER FOR BRYAN.

The corporation clerk of Bryan, Mr. J. W. Hoke, wrote that the village was about to replace an old tile drain in High Street with a vitrified pipe, 15 to 18 inches in diameter, and asked whether the same would be contrary to law. At a meeting of the State Board of Health, held April 27th, 1904, it was decided that the replacing of this old drain constituted a new sewer and outlet, and should receive the

Board's approval before being built. The village authorities were asked for further information, and plans and specifications were submitted. These were referred to the engineer of the Board, who visited Bryan May 31st. The following report was made:

At the present time Bryan is provided with two or three miles of poorly constructed uncemented sewers which, besides storm water, cellar drainage and field drainage, receive the entire sewage from a large number of business blocks and residences as well as the overflow from several cesspools.

In 1896 the Board made an inspection of the conditions at Bryan and urged that the subject of sewerage and sewage disposal be considered.

With the exception of a few sewers in the northerly part of the village which drain into a county ditch, the present sewers discharge into Lynn Run, a stream having, at the time of inspection, a discharge of not more than one cubic foot per second and flowing in an easterly direction through the southerly part of the corporation, and Joe Run, which is located near the easterly border of the corporation and flows southerly into Lynn Run, entering the latter at a point about a mile southeast of the village.

The following is a short account of the present sewer outlets:

At Lynn Street, emptying into Lynn Run, from the northerly side, one storm sewer; one sanitary sewer, carrying a considerable amount of domestic sewage.

From the southerly side of Lynn Street, one storm sewer.

At Main Street, emptying into Lynn Run, is a 24-inch storm sewer, recently built, which drains Main Street from the run to the railroad, a distance of nearly a mile.

At Mulberry Street is an old drain, said to receive drainage from several water-closets, and to discharge into a gutter leading to Joe Run. This was not personally inspected.

At Bryan Street are two old drains, one on each side of the street, which receive sewage from a hotel and several houses. One of these drains discharges directly into the gutter several hundred feet from Joe Run, and the other is so poorly constructed that sewage is said to be forced out of it to the surface of the ground in time of storm.

In High Street are two old drains, one on either side of the street, the southerly one of which receives sewage from several houses on High Street, and the northerly one receives sewage from the principal business blocks in the center of the village as well as that from several houses on High Street.

All of these sewers receive storm water and cellar drainage in addition to domestic wastes.

Joe Run, which receives by far the largest portion of the domestic sewage of the village, is simply an overflow for some flowing wells in this district and although there is some flow through it at all times, the amount is very small. At the time of inspection, although directly after a continued rain which had caused a considerable flow in the field drains leading into this run, a rough measurement showed the discharge to be only .2 cubic feet per second, an amount entirely too small to dilute the sewage which is at present discharged into it and which it is proposed to discharge in the future.

Moreover there are many houses located along this run the occupants of which complain bitterly of the offensive condition caused by the discharge through the present sewers and also because of the nuisance caused by the sewage leaking out of the sewers themselves into the streets and being allowed to discharge directly into the gutters in some cases and flow several hundred feet along the side of the street. That this condition is allowed to exist is surprising on account of the fact that most of the houses near by are of a very respectable class.

The proposed plan is to replace the old tile drain on the northerly side of High Street with a 15 to 18 inch vitrified pipe about 3,600 feet long. This sewer, as soon as built, will receive the sewage of about 100 persons which now discharges into the present tile drain, while with the expected growth of the village it will receive that from some five or six hundred people living on both sides of High Street (it is expected that the old drain on the south side of High Street will in time be abandoned) and several cross streets near High Street. Besides the sanitary drainage it will receive the storm water from a flat portion of High Street opposite the public square as well as that from various catch-basins along the remainder of its route.

The present drain is in a broken condition and is obstructed by roots, so that it is entirely inadequate to carry away the sewage discharging into it, with the result that the cellars at the upper end of High Street are periodically flooded with a mixture of storm water and sewage.

There is no doubt that the proposed improvement is badly needed on account of the present serious damage and menace to health by the flooding of cellars, but the proposed location of the outlet into Joe Run would cause, as it does at present, serious nuisance to those living closest to it. There are two houses within 50 to 75 feet of this location, and some twenty within 500 feet.

It is possible, however, that by locating the outlet some distance below the proposed point no nuisance from this sewer would result. Such discharge should only be allowed temporarily and as a means of preventing the flooding of cellars in High Street. It would not make the present conditions any worse, but would partially relieve the nuisance now existing to those living along the present outlets.

The village is heavily in debt on account of a large amount of paving work which is now in progress and it is stated that any more money for sewers could be raised only by popular vote.

The Board disapproved of this sewer June 11th, 1904, and the village authorities were advised that they should adopt plans for a general system of sanitary sewers and sewage disposal, to be submitted to the State Board of Health and approved by it; and that if the sewer in High Street were constructed in harmony with this general plan the Board would be willing to approve of a temporary outlet into Joe Run at a point where the discharge of sewage would cause no nuisance to those living near by.

REPORT ON SEWAGE DISPOSAL AT BULAH PARK. (COLLINWOOD.)

In accordance with a report upon the sanitary condition of Bulah Park, a camp meeting ground covering about three acres on the shore of Lake Erie near Collinwood, in 1902 the Board made the following recommendations:

1st. That new public lavatories be built with flush tanks and sewer connections.

2d. That a sanitary sewer system be established which shall have connection with every cottage; with suitable sewage disposal by the septic tank, or some other method of purification.

3d. That greater care be exercised in the collection of garbage.

In January, 1904, a rough sketch of a sewage disposal scheme was submitted to the Board by an official of Bulah Park. This scheme was considered by the engineer of the Board and found to be unsuitable for the purpose; and the Bulah Park officials were therefore notified, informally, that they should employ a sanitary engineer to design proper disposal works.

Later plans were submitted by The Walter P. Rice Engineering Company for sewage disposal at Bulah Park. These plans were referred to the engineer of the Board and the following report was made:

From information furnished by the engineers, The Walter P. Rice Engineering Company of Cleveland, it appears that there are about thirty cottages at Bulah Park which are used, during three or four months in the summer, by from one hundred to two hundred people; although six hundred to seven hundred may occasionally spend the day at this place. The quantity of sewage to be treated is considered to be not more than 10,000 gallons per day, or that from two hundred peo-

ple at 50 gallons each. Moreover it is expected that within two or three years certain Collinwood sewers and the Cleveland intercepting sewer will receive the sewage from this place.

The plan for sewage purification consists of a septic tank, 8 by 15 by 7 feet deep, holding about 7,000 gallons, or probably a day's flow; and two coke filters, each 6 by 3.87 by 7 feet deep. These filters are to contain pieces of coke of about one and one-half inches in diameter and will be used alternately for periods of about one day. The sewage is to be distributed over the surface of the coke by means of a wooden trough.

Although not stated in the written application, the engineers stated verbally that in order to avoid the breaking of the outlet pipe extending into the lake by ice, and also to avoid possible nuisance to bathers, they would lay a tile pipe with open joints in the sand just above the water and dispose of the effluent by subsoil irrigation. With the small amount of sewage expected it is probable that this would be the best way of disposing of the effluent. The plant will probably, considering the short time it is to be used each year, be capable of preventing the present nuisance.

The plans were approved by the Board March 19, with the condition that if the proposed subsoil method of disposing of the effluent from the filters proved unsatisfactory an outlet into the lake should be constructed at a point and in such a manner that no nuisance would be caused to bathers in case partially purified sewage is discharged.

It was also suggested to the engineers that better results might be obtained if better opportunity for aeration were given the sewage between the tank and filters.

REPORT ON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR BLUFFTON.

Mr. W. E. Myers of Kenton, engineer for the village of Bluffton, submitted plans for sewerage and sewage disposal for that village on December 30th, 1904. In anticipation of these plans, the engineer of the Board visited Bluffton on May 10th, 1904, and in company with the mayor and the engineer inspected the conditions relative to sewerage. The following report was made:

The State Board of Health, September 5th, 1897, disapproved a proposed system of sewers for Bluffton, unless some satisfactory works for purifying the sewage were installed.

At present there are no public sewers at Bluffton, but there are about twenty private drains discharging into Riley Creek. It is stated that no manufacturing wastes are discharged into the creek.

Riley Creek has a watershed above Bluffton of not more than 50 square miles. The flow, when inspected May 10th, 1904, was about 4 cubic feet per second, but judging from the flow of streams of similar size and character, and also from a statement of a citizen of Bluffton, this stream is practically dry at times. There are several long shallow pools below town which, even if there is a slight flow, would probably retain any sewage discharged into the creek.

The creek, which is a tributary of the Auglaize River, does not affect any water supply above Toledo, some 150 miles distant by water. It is used, however, for stock watering purposes by the farmers living along its banks.

The proposed sewerage system provides for about 8,000 feet of sewers, to be used for domestic purposes only. The sewers vary from 6 inches to 12 inches, the latter being the size of the out-fall sewer.

The sewage from all parts of the village is to be collected by gravity at a point near the confluence of Little Riley and Riley creeks, where it will be necessary to raise it about 16 feet in order to pass it through the purification works. The sewage is to be raised by an electrically driven pump, the power to be furnished by the village electric light station. The purification works are located on a long, narrow strip of land near the confluence of the above two streams and sloping abruptly toward Big Riley Creek. There are no houses within a considerable distance. The works consist of a grit chamber and a septic tank, having a capacity of 30,000 gallons, divided longitudinally into two sections, holding 10,000 and 20,000 gallons respectively. The effluent from the septic tank flows into a dosing chamber, holding a few hundred gallons, from which it is to be discharged intermittently upon the filters.

The filters are three in number, each 25 feet by 80 feet, and have a total area of 6,000 square feet or .14 of an acre. The filtering material consists of 1 foot of sand under which is to be 2 feet of broken limestone.

Suitable provision is made for distributing the sewage over the surface of the filters and a sufficient number of underdrains is provided.

When the sewers are first constructed there will be probably not more than 35 connections with them. This would mean a flow of about 12,000 gallons per day. The works, as shown on the plans, with a few changes, would satisfactorily purify this amount of sewage. It is doubtful, however, whether the plant would purify 60,000 gallons per day, the maximum capacity claimed for it.

The engineer for the village states that the village authorities desire to postpone the building of the septic tank for the present, or until the State Board of Health deems this tank necessary. On account of the coarse character of the filtering material to be used it is important that this tank be installed as soon as the remainder of the works are built.

These plans, as shown upon drawings submitted December 30th, 1904, were approved by the Board January 3d, 1905, provided,

1st. That the total depth of filtering material in the filters be increased to 4 feet.

2d. That samples of all filtering material be submitted to and receive the approval of the State Board of Health before being used.

3d. That the entire filtration works, as shown on the plans, be constructed as soon as any of the sewers are laid; and,

4th. That the works be enlarged as deemed necessary by the State Board of Health.

The Board also suggested that the dosing system of the purification works be so arranged that one bed might be cut out entirely for the purpose of resting or cleaning, and that the elevation of the works be such that future additions could be made easily and in such a manner that they would be protected from flood-waters from the creek.

MODIFICATION IN APPROVAL OF LINWOOD SEWERS. (CINCINNATI.)

At a meeting of the State Board of Health held January 20th, 1904, the question of approving sewers in Linwood, now a part of Cincinnati, formerly approved by mail December 23d, 1903, was taken up and it was voted to approve such sewers upon the condition that no connections for house drainage, water-closets or vaults be permitted without the consent of the Board; said approval to take effect on receipt by the Board of a written agreement, signed by the board of public service, that no permit should be granted for house connections contrary to said condition.

The city engineer afterwards made request that the condition be modified to read "that no connection for house drainage, water-closets or vaults be permitted." The matter was referred to the member of the State Board residing in Cincinnati and he reported in favor of sustaining the previous action of the Board, and it was so decided.

The board of health of Cincinnati (composed of the members of

the board of public service) requested later that the conditions be modified so as to read "That no water-closets or out houses be connected with these sewers until after the completion of the new water works system, and that all plumbers and sewer tappers making such connections have their licenses revoked, and that these sewers and all house connections be inspected every three months by the sanitary inspectors."

This request was referred to the member residing in Cincinnati, and he recommended that the conditions be modified in accordance with the resolution of the board of health of Cincinnati, that is, so as to permit house connections for bathtub, kitchen sinks and roof water, but not for water-closets; believing that the health officer of Cincinnati would see that the conditions of approval were enforced if modified.

The Board therefore gave its consent to the modification, making its approval read as requested by the board of health of Cincinnati, August 11th, 1904.

REPORT ON PROPOSED SEWER IN MAIN AND POPLAR STREETS, CHILLICOTHE.

The city engineer of Chillicothe, Mr. H. M. Redd, submitted plans for a proposed sewer to be built in Main and Poplar streets and to discharge into the Scioto River. The engineer of the Board visited Chillicothe on December 27th, 1904, and the following report was made:

The State Board of Health, May 11th, 1897, approved plans for sewerage and sewage disposal subject to the provision that sewage disposal works be ready for operation and the temporary outlet (then approved by the Board) into the Scioto River be abandoned within three years from the above date.

In 1900 the Board, finding that no nuisance was being created by the discharge of sewage at this outlet, approved the use of this outlet for two years longer.

No sewage disposal works have yet been built and the temporary outlet is still in use, receiving the sewage from about 1,000 people through three miles of sewers. Near the lower end of the main sewer some surface water is admitted, but otherwise the sewers are used for domestic purposes only. The outlet consists of an iron pipe extending well out into the current of the river and is said never to cause a

nuisance. At the time of inspection the river was a little higher than usual. However, no trace of sewage or odor could be detected in the vicinity of the outlet. The flow of the sewage in the main sewer was found to be comparatively small. The annual report of the State Board of Health for 1901 states that no nuisance was being created at that time.

According to the general plans, when sewage disposal works are established, the sewage in the main sewer will be made to flow in the opposite direction to that which it now takes and be collected at a pumping station from which it will be forced to a filtration area to be located on low land near Paint Creek.

One domestic and also one storm sewer was approved by the State Board of Health October 14th, 1904. These are little used, however. The domestic sewer discharges into the storm sewer and the latter into Paint Creek. The former sewer can, however, be easily disconnected from the storm sewer and be continued to the proposed location for the pumping station.

There are a few other storm sewers which have been built for many years, but are said to receive no domestic wastes.

The proposed sewer is to start at the B. & O. Railroad shops, near the corner of Main and McArthur streets, pass through Main Street to Poplar Street and thence through Poplar Street to the Scioto River. The total length of the sewer will be about one mile. It will be 8 inches in diameter at its upper end and 12 inches at its lower end. The territory which could drain into it has an area of about 75 acres. The sewer will be used for domestic purposes only. As soon as constructed it would be used by about 800 people, consisting principally of the employes of the railroad shops and also the employes of a shoe factory. It is largely on account of the desire of the B. & O. Railroad officials to improve the sanitary condition of their shops that the city desires to build this sewer. The houses along the route of the sewer are not of such character that they will probably connect with the sewer to any extent. The point chosen for the outlet is about 1,000 feet away from any house and there are no houses near the river for a long distance down stream. The outlet will be built of iron pipe extending below the surface of the river into a deep pool.

The lowest possible flow of the Scioto River at Chillicothe, judging from the accurately measured flow of the same river at Columbus and taking into consideration the relative sizes of the watersheds at the two places, is at least 30 cubic feet per second. Under the most unfavorable conditions a flow of 6 cubic feet per second will satisfactorily dilute, so far as sight and sense of smell are concerned, the sewage of 1,000 people. When the proposed sewer is built there will not be more than 2,000 people discharging sewage into the river at Chillicothe. It

is therefore evident that the flow of the river is three times as much as is necessary to dilute the sewage of all who will drain into the river for some time in the future.

As the Scioto River is not used for drinking purposes, and as Cincinnati, which is over 100 miles down stream following the Scioto and Ohio Rivers, is about to purify its public water supply there would seem to be no reason why the sewage of Chillicothe cannot be safely discharged into the river for some time to come.

These plans, for a sewer in Main and Poplar streets, to discharge into the Scioto River at the foot of Poplar Street through an iron pipe extending below the surface of the river, were approved by the Board January 3d, 1905, provided that sewage purification works, of a design satisfactory to the State Board of Health, be built when deemed necessary by said Board, and that the sewage discharged at Poplar Street, as well as the sewage from the remainder of the city, be purified at said works.

REPORT ON PROPOSED SEWERAGE FOR DELPHOS.

The village of Delphos, through its consulting engineer, Mr. G. L. McKibben, submitted plans for sewerage and sewage disposal at Delphos. The engineer of the Board visited Delphos April 29th, 1904, inspected the general topography and sanitary condition of the village though he did not view the location of the sewer outlet proposed. The plans were referred to him and the following report was made:

Delphos is a village of about 5,000 inhabitants situated between two small streams, Jennings Creek and Flat Rock Creek, which unite at a point just north of the village and form a stream which five miles further north discharges into the Auglaize River. The Miami and Erie Canal runs through the center of the village, forming a divide. The topography of the village and vicinity is decidedly flat.

At present there are some twelve or fifteen combined sewers of short lengths, eight of which discharge into Flat Rock Creek and cause a decided nuisance, at times, to those living near. This nuisance is increased by the discharge of the wastes from a brewery.

It is now proposed to build a 24-inch and 30-inch interceptor parallel and near to Flat Rock Creek which will receive all drainage now entering that stream and convey it, by crossing the canal, to an outlet into Jennings Creek near the extreme northwesterly part of the corporation. A similar interceptor, 30 inches in diameter, will be

built on the easterly side of the village and will discharge into Jennings Creek at the same point.

A system of laterals is planned, all on the combined plan, to be built as the village can afford it. It is the intention to ultimately build a complete sanitary system for the village and to use the combined sewers for storm water only.

Jennings Creek, at the point of discharge, has only a small flow, but is said never to be dry. The country below is sparsely settled and the nearest point at which the water is used for a public supply is Napoleon, on the Maumee River, some fifty miles distant. The stream may be used to some extent for stock watering.

In order to purify the dry weather sewage as much as possible with the limited funds available, it is proposed to construct a sedimentation tank of 15,000 gallons capacity, or four to eight hours dry weather flow, estimated on the basis of 50 water-closets being connected with the sewers. The entrance to this tank is to be so arranged that during time of storm nearly all the flow will be diverted directly to the creek.

In addition to these combined sewers there is to be a system of storm sewers in the Third Ward District, an area of 15 to 20 acres, with outlet into Jennings Creek at the southwesterly part of the village.

Later the consulting engineer and the health officer of Delphos called at the office of the Board in regard to the plans. They stated that the villagers were quite willing to pay for a complete system of sewers with sewage disposal works; that some time earlier a vote to issue \$100,000 in bonds for that purpose carried with little opposition, but that the provisions of the Municipal Code rendered that vote invalid; that they were up to their limit of indebtedness and were unable, at that time, to raise but \$23,000 for improvements in sewerage, very much needed on account of the nuisance spoken of above. They further stated that about \$6,000 a year could be set aside for the sewerage system, and that within a few years, if the Board deemed it necessary, they would be in a position to put in proposed purification works.

The Board approved, July 25th, 1904:

1st. The construction and use of the combined sewers with the understanding that all connections for domestic sewage be removed from them as soon as it is found that the discharge of such sewage through the sewers causes a nuisance either on account of odors arising through catch-basins in the streets, or on account of pollution of the stream caused by the impracticability of purifying such sewage when combined with storm water.

2d. The discharge of the dry weather sewage into Jennings Creek near the northwesterly limits of the corporation, after such

sewage has first been passed through a sedimentation tank holding 15,000 gallons, until such time as the Board deems thorough purification necessary; and,

3d. The storm water system and outlet for the Third Ward District.

REPORT ON PROPOSED SEWERAGE FOR ELYRIA.

September 3d, 1904, The Riggs and Sherman Company, of Toledo, presented plans and asked the Board's approval of a system of sewers for Elyria. The plans were referred to the engineer of the Board and the following report was made:

The application of the consulting engineers describes the present conditions. It might also be said that it is estimated that about 2,000 people, or 20 per cent. of the population, now use the present combined sewers which discharge at some thirty different outlets. Some of the outlets cause a nuisance during the ordinary summer flow; others do not.

The proposed system will comprise about 30 miles of domestic sewers which will intercept the dry weather flow from the present combined sewers; while the present outlets will be used in connection with storm water overflows. These storm water overflows are undesirable as permanent features of the system both on account of the discharge, at times, of sewage mingled with storm water into the stream and because such an arrangement allows street washings and clay to enter the domestic sewers and cause much trouble in the purification of the sewage. On the other hand, if these present sewers are not intercepted they will continue to discharge into the river and some of them will continue to create a nuisance.

The consulting engineers present, in their application, a statement of the monthly flow of the river as determined by measurements made under the auspices of the United States Geological Survey. They also make the assumption that a flow of 5 cubic feet per second is required to satisfactorily dilute the sewage of 1,000 persons. Extensive studies by the Massachusetts State Board of Health of more recent date than those referred to by the consulting engineers, show that this is a fair assumption.

With a basis of 10,000 people at Elyria, there would therefore have to be a total flow in the river of at least 50 cubic feet per second. Although the monthly average flow as presented by the consulting engineers is much greater than this, it is found upon inspecting the

daily records upon which these monthly averages were based, and also the daily records from December 31st, 1903, up to the present time, that during the five months, August to December, 1903, and the three months of June, July and August, 1904, the flow was less than 50 cubic feet per second for about 50 per cent. of the time; and that the flow was occasionally only 6 or 8 cubic feet per second, or enough to satisfactorily dilute the sewage of only 1,200 to 1,600 people.

The high monthly averages are accounted for by the fact that the rainfall runs off very rapidly from the watershed of the Black River, and that nearly every month there is a flood of high water, lasting only a few days, but having the effect of making the monthly averages much greater than the actual discharge during the greater part of the time.

The Board approved plans (dated July, 1904) September 22d, 1904, but recommended that the present combined sewers be excluded from the system as soon as practicable and used for storm water only; and disapproved the outlets of this system into Black River unless the sewage be purified in a manner satisfactory to the State Board of Health before being discharged into the river.

REPORT ON PROPOSED SEWERAGE FOR FAIRPORT.

The village of Fairport made application for the Board's approval of a sewerage system and submitted plans, through its engineer, Mr. J. C. Ward of Painesville. The engineer of the Board visited Fairport on March 7th, 1904, to make the necessary investigation. The following report was made:

Fairport is a village of about 2,300 people, covering about one square mile on the shore of Lake Erie at the mouth of Grand River. The village is populated almost entirely by foreigners (Huns and Fins) who give little attention to sanitary conditions, with the result that the village is in an extremely filthy and unhealthful state.

The village is supplied with water from the Painesville water works; the supply being taken from filter galleries on the beach about a mile southwest of the mouth of Grand River. At times the raw lake water is admitted to the mains.

The amount of typhoid fever in Fairport, according to the health officer, is surprisingly large, at least sixty cases per year. This rate is as high as that in any of our large cities. It is due, probably, almost entirely to the lack of proper drainage rather than to the water supply, as Painesville, supplied with the same water, has much less typhoid.

The sewage and sink drainage, which is considerable in amount owing to the use of the public water supply, is discharged through private drains into one or two small runs which are practically dry at times. Horrible odors are thus created in warm weather. It is plainly evident that Fairport is in urgent need of sewers.

The proposed plans show three different systems, each with its separate outlet; two of these are for domestic sewage only, and one is a combined system which will receive both sewage and storm water. In addition, a storm sewer is proposed to drain the southerly part of the village.

Outlet No. 1 is an 8-inch pipe, near the foot of Second Street, which will discharge into a 12-inch pipe already laid under the railroad tracks and thence to the river. This will receive the sewage of about 400 people living on Second, Third, Eagle and High Streets, within 1,000 feet of the outlet.

Outlet No. 2, located at the foot of Fourth Street, is to receive the sewage and storm water from about 60 acres, upon which some 500 people live. The lower end of this outlet sewer is a 24-inch pipe already laid which is used as a culvert to convey the storm water under the railroad tracks. Having combined sewers in this district would probably necessitate building sanitary sewers if at some time purification were deemed necessary.

Outlet No. 3, located on the railroad company's land opposite the foot of Sixth Street, will be a 15-inch pipe through which the sewage of about 1,000 people living in the southerly part of the corporation will discharge. No storm water is to enter this sewer, but a special storm sewer will take care of the surface water from this territory and discharge into an arm of the river near the south corporation line.

All outlets at which domestic sewage is to be discharged will extend into the deep water of the river.

As above stated, the Painesville and Fairport water works are located on the shore of the lake one mile southwest of the mouth of the river, and while it is possible that during the occasional northeast winds the lake water in the vicinity of the works could be affected by the sewage of Fairport as well as that of Painesville, it seems quite as probable that the water supply would be influenced by the enormous quantity of sewage which the city of Cleveland now discharges some twenty-five miles east of the water works and will in the future discharge within seventeen miles of these works. Part of this sewage could be conveyed by the prevailing westerly winds over this distance.

Considering this, as well as the facts that sewage purification works at Fairport would necessitate pumping the sewage at large expense, that sewers are urgently needed and that at present a large portion of the sewage of Fairport reaches the river through open ditches.

At a meeting of the State Board of Health held April 27th, 1904, these plans were approved upon the condition that purification works be installed whenever this be required by the State Board of Health.

REPORT ON PROPOSED SEWERAGE FOR THE THIRD WARD, FREMONT.

On October 13th, 1904, the city council of Fremont asked the Board's approval of a proposed sewer and outlet which they proposed to build. They were asked to submit plans and further information. Plans were submitted by the city civil engineer, George W. Leshner, December 9.

In anticipation of new sewerage, the engineer of the Board visited Fremont on July 5th, 1904. The following report was made:

Fremont has a population of about 8,600 and is located on the Sandusky River in Seneca County. There were, in 1898, and practically the same conditions now prevail, about 16.5 miles of sewers, with four outlets into the river. About 75 per cent. of the population have access to the sewers, but it could not be estimated how many people actually use them. The principal outlet is that of a 48-inch by 64-inch brick sewer which drains practically all of the west side of the city and discharges at the Lake Erie and Western Railroad bridge in the lower part of the town.

On the easterly side of the river there are three sewers, each one-fourth to one-half mile long, which discharge at the foot of State, Howland and Chestnut streets, respectively.

All of the present sewers are on the combined plan and receive both house drainage and storm water. When the river is low the sewage is said to cause more or less nuisance, although it is not believed that very offensive conditions are created. The elevation of the river at this place is influenced by the wind and by the elevation of the lake, so that at times backwater extends to a point above the sewer outlet, while at other times there is a fair current past these outlets.

On account of a dam some distance below the water works intake the discharge of sewage from either the present or the proposed outlets can probably not affect the water supply of Fremont. The water supply of Sandusky is taken from the Sandusky Bay about thirty miles, by water, below Fremont.

It is proposed to construct a combined sewer in the Third Ward from a point near the corner of State and Everett Streets and extend-

ing in a generally northwesterly direction, passing through Herbster, Pine and Sixth streets, Kentucky Avenue and Fifth and Walnut streets to the Sandusky River.

The sewer is to be 20 inches in diameter at the upper end and 34 by 52 inches at its lower end. Its capacity is evidently great enough to drain the storm water from nearly the entire Third Ward, which is about one-half mile square.

The outlet is immediately below the island which divides the river above this point into two channels, so that the sewage, if continued into the channel, would soon mix with the entire flow of the river.

The city engineer states that a number of residents in the Third Ward desire that this sewer be discharged at the foot of Kentucky Avenue, and the opinion of the State Board of Health relative to an outlet at this point is desired.

As the river opposite Kentucky Avenue is divided, as above described, into two portions, and as the channel on the Kentucky Avenue, or easterly, side is comparatively small, the discharge of sewage at this place, it is thought should not be permitted.

The Board approved these plans December 15th, 1904, for a combined sewer in the Third Ward extending in a generally northwesterly direction from the corner of State and Everett streets to the Sandusky River at the foot of Walnut Street, provided:

1st. That the dry weather flow of sewage be conveyed well out into the river channel and not allowed to come in contact with the banks of the river, and,

2d. That the dry weather flow of sewage from the Third Ward be collected by an intercepting sanitary sewer on the east bank of the river and purified in a manner satisfactory to the State Board of Health whenever in the opinion of said Board this becomes necessary.

The attention of the Fremont officials was called to the fact that the discharge of house sewage into the Sandusky River would probably become objectionable as the city grew and that it would be wise at that time, especially as there were few sewers then on the easterly side of the river, to construct a separate system of sewerage so that the domestic wastes could be collected separately and treated when necessary.

As the sewage on the westerly side of the river had already reached such large proportions the separation of the sewage and storm water would probably not be warranted; therefore at some future time an intercepting sewer would have to be built along the westerly bank of the river to convey the dry weather flow of the sewage to a point below town where it could be purified.

The authorities were also notified that the discharge of sewage at the foot of Kentucky Avenue, as suggested by certain citizens of Fremont, ought not to be permitted.

REPORT ON PROPOSED STORM SEWER IN HEATON STREET, HAMILTON.

The city engineer of Hamilton, Mr. L. A. Dillon, on May 9th, submitted plans for a storm water sewer in Heaton Street, which were referred to the engineer of the Board for investigation. The following report was made:

Heaton Street is located in the northerly part of the city. On account of its level grade much storm water is left standing in the street and it is proposed to pave it and construct an 18-inch sewer to carry away the surface water and discharge it into the wasteway of the "hydraulic" canal near the westerly end of the street.

The wasteway at this point is entirely covered over by factories on either side of Heaton Street and is carried under the street through a conduit, so that the outlet will be entirely hidden from view. The wasteway flows north for 3,000 feet and discharges into the river.

The Board approved the proposed outlet May 21st, 1904.

REPORT ON PROPOSED SEWAGE DISPOSAL FOR JACKSON.

At a meeting of the State Board of Health held January 24th, 1904, Messrs. Riggs and Sherman, the consulting engineers, presented plans for sewage disposal for the village of Jackson. The engineer of the Board made a verbal report in which he recommended that certain modifications be made in the plans, and also that certain additional information be obtained, before the Board took definite action. The consulting engineers were notified accordingly. The desired information was furnished and the plans resubmitted. The following report was made:

Jackson is a village of about 5,000 inhabitants located in the south central part of the state. Salt Creek, a stream having a watershed of some twenty-five square miles, provides natural drainage for the village. The average dry weather flow of this stream is very small and at times the stream bed is entirely dry.

Plans for a system of sewerage were approved in 1901 by the State Board of Health, provided disposal works were constructed prior to the use of the sewers. No sewers have yet been built.

In designing the proposed disposal works 400,000 gallons of sewage per day, or 80 gallons per day for each inhabitant, has been used as a basis.

Salt Creek, which is to receive the purified effluent, flows twenty miles or more through a sparsely settled district to the Scioto River. Its waters are at no place used for a public supply. A high degree of purification is therefore not necessary. The location of the plant, according to the report of the consulting engineers, is to be at a safe distance from habitation, there being only three houses within one-fourth of a mile and few others within a long distance.

The topography of the village makes necessary a long interceptor which will render a large portion of the sewage comparatively stale before reaching the works, where it will have to be first collected in a receiving well and pumped to the septic tank.

The proposed method of treatment is septic action followed by aeration and intermittent filtration through crushed slag placed in layers of various grades; the top layer to be composed of pieces of slag of about one-sixteenth of an inch in diameter and the lowest layer of pieces one-half inch in diameter.

The septic tank is 22 by 70 by 6 feet deep and holds 65,000 gallons. It is divided into longitudinal compartments of equal size. The tank is provided, at its entrance, with a small grit chamber, 12 by 6 by 6 feet. The sewage enters the tank two feet below the surface and leaves it at the surface; baffle boards are placed every 18 feet over the length of the tank.

The septic effluent is to be aerated by passing over two steps extending across the outlet end of the tank.

The filters are eight in number, each 50 feet by 108 feet, making a total area of one acre. They are to be built with bottoms and sides of concrete, filled with 4.5 feet of filtering material as described above, and will be underdrained by two lines of 4-inch soft tile, resting on the bottom of each filter.

A sludge bed, 40 feet by 60 feet, containing 3 feet of sand, is to be constructed at such an elevation that the sludge from the septic tank may be discharged upon it by gravity when necessary.

A dosing tank, holding 4,000 gallons, will discharge upon each filter in rotation, thus when the flow is 400,000 gallons daily, each filter will receive a dose of 4,000 gallons every two hours.

With proper operation this plant will produce an effluent which can safely be discharged into Salt Creek.

The Board approved these plans March 22d, 1904, upon the condition that the size of the filtering material be satisfactory to the State Board of Health before being placed in the filters.

The designing engineers were also advised to place vertical vents

in the underdrains in order to aid the drainage of the filters and also to allow the air to more readily penetrate the filtering material, and to provide for thorough distribution of the sewage over the surface of the beds. Also to arrange the dosing system so that any bed could be easily put out of service and rested or cleaned when necessary.

REPORT ON PROPOSED SEWERAGE FOR A PART OF LANCASTER.

The city engineer of Lancaster, Mr. John N. Wolfe, submitted a plan for a proposed sewer in Broad Street of that city, and asked the approval of same by the State Board of Health. The plan was referred to the engineer of the Board, who visited Lancaster May 5th, 1904, to make an investigation. The following report was made:

The city of Lancaster has a population of 12,000 to 13,000. There are at present about four miles of sewers, used for all kinds of drainage and wastes, which discharge into the Hocking River at six different points. It is estimated that not more than seven hundred people use the sewers. The outlets are described briefly as follows, the number referring to a map of Lancaster, on file in the office of the State Board of Health:

Outlet No. 1. 24-inch pipe at the foot of Mill Street; length of sewers connected 4,000 feet; receives sewage from seventy-five people, besides storm water and cellar drainage.

Outlet No. 2. 24-inch pipe, 2,000 feet long at the foot of Union Street; receives brewery wastes and drainage from low land.

Outlet No. 3. 24-inch pipe at the foot of Mulberry Street; length of sewers connected 3,000 feet; receives sewage from thirty to forty people, surface and cellar drainage and wastes from three shoe factories.

Outlet No. 4. 24-inch pipe, 800 feet long at the foot of Main Street, used for surface water principally, but may receive some sewage.

Outlet No. 5. 24-inch pipe in field, 700 feet southwest of west end of Walnut Street; length of sewers connected 5,000 feet; receives sewage from four hotels, several business blocks, fifty residences, and one shoe factory, representing a total of from five to six hundred people; also surface water, cellar drainage and ground water.

Outlet No. 6. 18-inch pipe located just east of the lower Hocking Valley Railroad bridge; length of sewers connected 5,500 feet; receives

sewage from forty to fifty people besides much surface drainage and ground water.

The Hocking River, though having at Lancaster a watershed of only 50 square miles, is said to be fed largely by springs, so that the dry weather flow is not as small as would be expected from the size of the watershed. A rough measurement of the flow at the time of inspection showed it to be 10 to 15 cubic feet per second, which was said by the city engineer to represent the average dry weather flow. The river shows signs of pollution for some distance below the principal outlet, but there are no houses located near enough to the stream to be annoyed by this. It is said that the stream is not used to any extent, if at all, for stock watering. The cities of Logan, Nelsonville and Athens, respectively twenty, thirty and forty-six miles below Lancaster, obtain their water supplies from wells near the Hocking River, but do not use the river water direct.

It is proposed to construct a sewer 6 inches in diameter at its upper end, and 8 inches at the lower end, from the corner of Chestnut and Broad streets, through Broad Street to the river, a distance of 2,100 feet.

The primary object of the sewer is to drain the surface water from a low place near Chestnut and Broad streets, which causes a nuisance in the summer time and which cannot otherwise escape; though all the surface water except this is easily disposed of by means of paved gutters.

This sewer as now proposed would be constructed so that it could be intercepted by a trunk sewer, which will at some future time have to be built along the river bank in order to convey the sewage from this as well as from present sewers to disposal works below the city; although, on account of the present construction of some of the sewers, this will mean more or less rebuilding.

On account of the increasing pollution of the river from the sewage of Lancaster, purification works will become necessary within a comparatively few years, and it is therefore very desirable that the city officials should keep this fact in mind when extending the present sewers, in order that a system of sewerage for domestic wastes only may be procured, without unnecessary expense, when the time comes to abolish the present outlets and convey the sewage to purification works below the city.

For similar reasons it would be very desirable to build sub-drains beneath the proposed sewer where the latter is in low ground, in order to prevent infiltration of ground water into it.

The Board approved these plans May 13th, 1904, with outlet into the Hocking River, with the understanding that when purification works are built no surface water is to be admitted to this sewer.

REPORT UPON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR LOCKLAND.

At a meeting of the State Board of Health held January 20th, 1904, The Riggs and Sherman Company, as consulting engineers, presented plans for sewerage and sewage disposal for the village of Lockland, asking the Board's approval. These were referred to the engineer of the Board and the following report was made:

Lockland is an incorporated village of about 3,000 inhabitants located in Hamilton County, about twelve miles north of the city of Cincinnati. The West Fork of Mill Creek passes through the central part of the village from north to south, and the East Fork of Mill Creek separates Lockland from Reading. Mill Creek is a notoriously polluted stream below Lockland. The Miami and Erie Canal flows northeast to southeast through the village. On account of these numerous water courses there are exceptionally favorable opportunities for getting rid of the surface drainage of the village.

The plans, as presented, provide for a separate, or double system of sewers; one system for storm water and one for domestic sewage. The storm water system has numerous outlets into the creek and canal. The outlet into the canal must be approved by the State Board of Public Works.

The plans call for about ten miles of domestic sewers. The domestic sewage from the village is to be collected upon an area bounded by Rolef Street, Wilson Street, the canal and the West Fork of Mill Creek. This area contains 5 or 6 acres.

The purification works located upon this area are to consist of a septic tank having a capacity of 52,500 gallons; this tank being 65 feet in length, 19 feet in width and 6 feet deep, and divided longitudinally into two compartments. The effluent from the septic tank is to be aerated by passing over a weir and then applied to intermittent sand filtration beds. These beds will be five in number, each 36 feet by 66 feet and 4 feet deep. The rate of application, with a daily flow of 210,000 gallons (70 gallons per capita), would be 193,000 gallons per acre per day.

Besides asking for the Board's approval of these plans for sewerage and sewage disposal, the consulting engineers desired permission to temporarily discharge the effluent from the septic tank directly into Mill Creek without any purification whatever, claiming that as Mill Creek was already badly polluted the discharge of septic effluent would not increase the effect of the present pollution and also because it was

proposed by the cities and villages located along Mill Creek to build, in the near future, a trunk sewer along the valley of this stream to the Ohio River.

The Board approved the sewers proposed and also the storm water outlets; and also approved of the discharge from the septic tank directly into Mill Creek until such time as sewage purification be required; and the consulting engineers were advised that if sand filters were introduced the Board considered that an area larger than proposed would be more satisfactory.

REPORT UPON PROPOSED SEWERAGE AND SEWAGE . DISPOSAL FOR LONDON.

At a meeting of the State Board of Health held April 27th, 1901, Mr. J. P. Force, as consulting engineer, presented plans for sewerage and sewage disposal for the village of London, and asked the Board's approval. These plans were referred to the engineer of the Board who described the plans as follows:

London is an incorporated village of about 3,500 inhabitants, located in the central portion of Madison County upon Oak Run, a small branch of Deer Creek, which is a tributary of the Scioto River. The total area of the corporation is 1,445 acres and about 800 acres of this area is divided into streets.

According to the plans presented, the domestic sewage from the entire village is to be conveyed through an 18-inch sewer to purification works, located some 1,500 feet southeasterly from the corporation limits and between Oak Run and Main Street. The effluent from these works is to be discharged into Oak Run through a short length of 18-inch pipe.

It is the intention to build about four miles of the sewerage system in the immediate future and it is expected that some 1,300 people will use these four miles of sewers as soon as built. The ultimate number of people which can use the system as designed is estimated at 10,000, or three times the present population of the village.

The quantity of sewage expected upon completion of the four miles of sewers is estimated at 100,000 gallons, while the ultimate capacity of the system is 750,000 gallons. These figures are obtained by estimating the daily yield per person using the sewers, at 75 gallons.

The sewers are to be ventilated through manhole covers in the

street and also through the main soil pipes of the houses connected. Automatic flush tanks are to be provided at the ends of the sewers and underdrains will be placed under the entire system to prevent infiltration of ground water.

The purification works proposed consist of six septic tanks having a capacity of 25,000 gallons, or a total capacity of 150,000 gallons. Only two of these tanks, having together a capacity of 50,000 gallons, are to be built in the immediate future. This will give a septic period of twelve hours.

The effluent from the septic tanks is to be discharged on to contact beds, the flow on to and through these beds being controlled by automatic devices. In the completed plans there will be eighteen of these beds, each 34 feet square at the bottom and 43 feet square at the top and containing 3 feet of coke, slag, stone, or similar material. It is the intention to build but six of these beds in the immediate future. The rate at which it is proposed to treat the sewage both in that portion of the works to be constructed immediately and that portion which is to be constructed ultimately is 400,000 gallons daily on each effective acre of area; or about one contact per day.

At a meeting of the Board, held April 28th, 1904, these plans were approved.

REPORT ON PROPOSED SEWERAGE FOR LORAIN.

The mayor made application for the Board's approval of a proposed sewer outlet for South Lorain, and the engineer visited Lorain July 6th, 1904, to make the necessary investigation. The following report was made:

In 1895 the State Board of Health approved of a sewer outlet into the Black River at a point about 3 miles from its mouth, upon the condition that the Sheffield Land and Improvement Company, which then proposed to construct the sewer, should build purification works within one year from the time the sewer was first used. That portion of the property of the Sheffield Land and Improvement Company which then contained, or has since been provided with, sewers was, however, at about this time annexed to the city of Lorain, thus placing the responsibility for sewage purification upon the city.

In 1899 the Board approved of the temporary discharge of the sewage of Sewer District No. 5, in the north part of the city, through the sewer then draining District No. 1, which sewer discharges into

the Black River at its mouth, and also of an outfall sewer for Districts No. 3 and No. 6 into Lake Erie at a point east of Chilson Avenue which is about one and one-half miles east of the Lorain water works.

Of the sewers proposed in 1895 in South Lorain, and approved by the Board, as stated above, only a comparatively small number have been built, and these discharge into an outlet located within the Steel Company's grounds.

It is now proposed to drain part of this South Lorain area (which was in 1895 intended to drain toward the north into this last named outlet) in an easterly direction to the river, entering it at a point about two and one-half miles above the present outlet. The area to be so drained is bounded by Grove Street on the west, Tenth Avenue on the north, Seventeenth Avenue on the south and Orange Street on the east. The reason for this change in plans is on account of the shallow sewers made necessary by the original plans.

The Sheffield Land and Improvement Company will superintend the construction of, and pay for the sewers, although they are within the corporation limits and are under the supervision of, and are to be ultimately owned by the city. The action on the part of the land company is on account of the immediate need of sewers in connection with the construction of about one thousand houses which the company intends building upon the area in question in the near future. The extensive construction is occasioned by the expected arrival of some one thousand employes of the National Tube Company, which is now erecting a plant at South Lorain.

The proposed sewers are all upon the sanitary plan, but will receive cellar drainage.

If disposal works are installed they would have to be located some distance south of the location now proposed for the outlet, but the engineer of the Sheffield Land and Improvement Company states that the expense of building a sewer to a suitable location for disposal works would be so much greater than the expense of building an outfall sewer, as now proposed, that it would be more economical in the end to build the present proposed outlet even if it had to be abandoned within a few years.

The city engineer of Lorain states that the general plan is in conformity with purifying the sewage of the whole South Lorain District when such purification is necessary. The city of Elyria, six miles above the proposed outlet, is taking preliminary steps toward sewage purification.

The Board approved these plans July 15, 1904, provided,

1st. That the sewage be carried into the river current and not allowed to flow over the banks; and;

2d. That sewage purification works, satisfactory to the State Board of Health, should be built at any time said Board might designate after a year from the day the sewers are first used.

REPORT UPON PROPOSED SEWERAGE FOR THE SHEFFIELD LAND AND IMPROVEMENT COMPANY,
AT LORAIN.

The Sheffield Land and Improvement Company of Lorain submitted plans for sewerage for a portion of the Company's property, and asked the Board's approval. The engineer of the Board visited Lorain August 11th, 1904, and the following report was made:

In 1895 the State Board of Health approved the sewerage plans covering a large portion of the Sheffield Land Company's property, with an outlet into the Black River at a point three miles from its mouth, upon the condition that the company install purification works within one year from the time the sewer was first used. All that portion of the land company's property which was or has since been provided with sewers, was soon after annexed to the city of Lorain, thus placing the responsibility of purification works upon the city.

July 15th, 1904, the Board approved of a separate outlet into Black River at about five and one-half miles from its mouth, for a portion of the area intended in 1895 to drain north into the present outlet three miles from its mouth. This area is within the city limits and is bounded as follows: Grove Street on the west; Tenth Avenue on the north; Seventeenth Avenue on the south, and Orange Street on the east.

The area now in question, consisting of 100 acres, though included in the territory approved by the Board in 1895, is still outside of the city limits and sewers will, therefore, be the private property of the Sheffield Land and Improvement Company. It is bounded as follows: Seventeenth Avenue on the north, Orange Street on the east, Twenty-first Avenue on the south, and Grove Street on the west.

There is no population now living upon this area, but it is expected that 100 one-family houses will be built within a year while plans are made for 650 houses in the future.

The sewage from the territory will be collected in a 15-inch main sewer and discharged into Black River at the foot of Seventeenth Avenue at a point a little more than six miles from the mouth of the river and about 3,000 feet above the outlet recently approved for that

portion of the Sheffield Land and Improvement Company located immediately north, but within the city limits.

Except for the entirely private ownership and control of the proposed sewers, the same conditions apply here as to the sewers and outlet recently approved. The sewers will be in general conformity with a plan for future disposal works. The discharge of sewage at the point proposed would be more desirable as regards the pollution of the Lorain water supply than at the outlet three miles from the lake, at which point it was formerly intended to discharge the sewage. The country immediately adjoining the river below the proposed outlet is not and cannot be inhabited.

August 22d, 1904, the Board approved these plans for sewerage, for a district in Sheffield Township known as Allotment 5, said district being bounded by Seventeenth Avenue, Orange Street, Twenty-first Avenue and Grove Street, the main sewer for said district to discharge directly into Black River near Seventeenth Avenue, with the following provisions:

1. That the sewage be carried into the river current and not allowed to flow over the banks; and,

2. That sewage purification works, satisfactory to the State Board of Health, be built at any time said Board may designate after a year from the day the sewers are first used; or in case sewage purification works are built for the territory immediately north of the southerly limits of the city of Lorain before said Board has stated that works are to be built for this district in question, the proposed sewers shall be made to discharge at such purification works as soon as possible.

REPORT ON PROPOSED SEWAGE DISPOSAL AND REFUSE INCINERATION FOR MARION.

September 27th, 1904, the city of Marion, through its city clerk, Mr. Wm. Fies, submitted plans made by Mr. George H. Pierson, consulting engineer, for a sewage disposal and refuse incineration plant. In anticipation of these plans being submitted the engineer of the Board visited Marion on September 5th, 1904, and arranged for the gaging of the flow of sewage and also for the collection of a sample of sewage. The following report was made:

Marion has a population of about 15,000 and is situated on the

Little Scioto River, into which stream it now discharges its sewage with the effect of creating extremely foul conditions in the river for several miles below the outlet and also endangering the water supply of Columbus. Marion is fortunate in that it has a separate system of sewers and that the sewage is all collected at one point, thus furnishing reliable data for plans for the purification of the sewage.

In 1900 Messrs. Snow and Barbour, consulting engineers, made a careful investigation into the subject of sewage purification at Marion and made plans which were approved by the State Board of Health at that time, but which have never been carried out. In the course of their investigation they found that there were about ten miles of domestic sewers in the city, seventeen per cent. of the streets being sewerred. The population using these sewers was estimated at 4,500. At that time half-hourly gagings of the flow of sewage were made continuously for a week, and the average flow was found to be 277,570 gallons per day.

The city engineer now states than only two miles of sewers have been built since 1900, making a total of twelve miles at present; and gagings recently taken show that the flow of sewage has not been materially increased since that time.

The analysis of a composite sample of sewage recently collected during one day shows the sewage is fairly but not unusually strong. There are three factories connected with the sewers, having 200, 500 and 600 employes respectively, but only the water-closets of these factories discharge into the domestic sewers; all manufacturing wastes being carried through the storm sewers into a nearby small stream. These manufacturing wastes are said to be in no way objectionable and consist mostly of clear water, containing possibly a little acid, and used in washing metal and for condensing purposes.

The location for the proposed sewage disposal and refuse incineration plant is to be upon a 7 acre lot located at the corner of Campbell Pike and Gurley Pike, about one mile northwest of the corporation line. The site is very favorable in that it is sufficiently removed from any houses so that, with ordinary care, there would be no possibility of odors causing a nuisance to those living near the plant, and also because it is reasonably near the city as regards hauling the garbage.

The plans for the sewage disposal plant provide for a grit chamber; septic tank 80 by 75 by 10 feet deep, divided into three equal sections and having a total capacity of 450,000 gallons; six contact beds, each 80 by 50 feet, having a total area of .55 of an acre, to be filled with 5 feet of broken limestone the size and quality of which is to be subject to the approval of the State Board of Health; 8 sand filters, each 50 by 80 feet, having a total area of .75 of an acre, to be filled with three feet of sand the size and quality of which is to be subject to the approval of the State Board of Health.

The present main sewer is to be tapped and extended to the proposed works, where the sewage will first be passed through a screen and then into the septic tanks where it will remain for such a period as is found upon trial to be most beneficial. Suitable provision will be made for pumping out the sludge from the septic tanks when necessary and disposing of it in the refuse incinerator. From the tanks the sewage will overflow into a "septic tank effluent chamber," where it will be aerated and the gases passed into the stack of the refuse incinerator. The discharge onto and from the contact beds will be accomplished by automatic dosing and regulating devices of standard design, which can be adjusted so as to allow the sewage to remain in the contact beds for the proper period. The discharge onto the sand filters will be regulated by gates, to be operated by hand and so arranged that one filter, or any group of filters can be made to receive the effluent from the contact beds.

The plans as proposed, with a suitable quality of filtering material, are of ample proportions and of proper design to purify the sewage of Marion at present as well as for some time in the future, and will probably produce an effluent which will greatly reduce, if not eliminate, the source of danger which Marion now presents to the purity of the Columbus water supply.

The refuse incinerator, or crematory, will be enclosed in a two story brick building, immediately adjoining the septic tanks and contact beds. The lower, or dumping floor, of this building will be on a level with the ground so that the refuse may be easily hauled into the building and deposited in the incinerator. The upper story allows space for a work room and laboratory. The combustion chamber and operating floor are below the ground level. This chamber has a capacity of 30 cubic yards and a grate area of 32 square feet.

The incinerator contains 261 square feet of space available for drying besides a total grate area of 116 square feet. The chimney of the incinerator is 6 feet in internal diameter and 90 feet high.

The following is quoted from the description of the designing engineer:

"It (the incinerator) is so purposely designed that the daily collection may have ample space for preliminary drying before burning also to provide for the future demands of the city should the population increase 100 per cent.

"All the odorous gases from the drying garbage are drawn downward to the upper grate at either side of the incinerator, and passed to the fire upon the lower grate and consumed before entering the dust arrester on their way to the chimney. All moisture will be so thoroughly evaporated before these gases reach the top of the chimney, that they will be lost before falling.

"By the manipulation of dampers the temperature in the garbage cell can be regulated to suit, be there fire upon one or all grates; the heated air is made to travel the greatest distance before entering the chimney.

"Thirty tons of all kinds of city refuse can be easily destroyed in twenty-four hours, domestic, house and kitchen refuse, ashes, sweepings, waste paper, cats, dogs, fowls, night soil, hotel garbage, animal carcasses, street sweepings, sewer refuse, paper, boxes, etc.

"The forms of refuse in the average proportion of daily collections will go far in giving the necessary combustible matter to destroy the garbage. In case the destruction of quite a number of dead animals in a short time be required, some soft coal or its equivalent in natural gas or wood is desirable fuel in the application to this incinerator."

We have evidence that this system has been successful at several places and there appears to be no reason why it should not be suitable for the conditions at Marion.

The Board approved these plans October 1st, 1904, and the attention of the authorities was called to the agreement made that samples of all filtering material should be submitted to and approved by the State Board of Health before being used.

Accordingly, on October 21st, 1904, Mr. George H. Pierson, the consulting engineer for the city of Marion, sent in a sample of sand marked "Turner Farm." This sand was to be used in intermittent filters to treat the effluent from contact beds. The rate of operation of these sand filters would be very high when the plant reached the capacity for which it is designed; thus requiring a fairly coarse sand.

The sample had an effective size of 0.42 mm. and a uniformity coefficient of 2.0. The carbonates in the sand as shown by the loss of weight after being in contact with dilute hydrochloric acid for twenty-four hours, was about 9.4 per cent. This was therefore the greatest amount which the sand could shrink in weight after use; but it was not thought probable that that amount of shrinkage would take place with Marion sewage.

Through the courtesy of the chemist at the Columbus Sewage Testing Station the sample was subjected to the continuous action of strong septic sewage for forty-eight hours, and it was found that no appreciable loss of weight took place.

The examination of this sand proving satisfactory, the Board approved the same November 1st, 1904.

REPORT ON PROPOSED SEWAGE DISPOSAL FOR THE
ANNEX OF THE OHIO INSTITUTION FOR
FEEBLE MINDED YOUTH,
NEAR MORGANS.

The superintendent of the Ohio Institution for Feeble Minded Youth, Dr. G. A. Doren, submitted plans for proposed sewage disposal for new buildings which were being constructed near Morgans. The engineer of the Board visited the proposed site on October 19th, 1904, in company with Dr. Doren. The following report was made:

A large tract of land near Big Darby Creek, in the vicinity of Morgans, has been purchased to be used as an addition to the institution at Columbus. There are to be at least three buildings which will accommodate eight hundred people. One building is completed, one nearly so, while the third is not yet started. The location of the third is near the edge of high ground which borders on the bottom land of Big Darby Creek, and the buildings are some 2,500 feet from the creek.

Between the creek and the buildings, about 1,600 feet from the latter, is a gravelly knoll some three or four acres in extent and rising six or seven feet above the surrounding bottom lands.

It is proposed to convey the sewage of the buildings through two inverted siphons, one of which is already partially constructed, to intermittent filter beds to be located upon and composed of the material of the above mentioned gravelly knoll.

At the upper end of the siphon which is partially constructed is a screen chamber and small settling well, and also a "cistern" of about 16,000 gallons capacity from the bottom of which the upper end of the siphon begins. This chamber has been built in order to afford a place for temporary storage of sewage in case the siphon becomes blocked or other repairs are necessary. It could have been omitted from the plans without interfering with the efficiency of the works.

The siphon is an 8-inch iron pipe, 1,500 feet long and the difference in level between the two ends is 13 feet. The velocity through it will be very slow, especially when the amount of sewage is small, as will be the case at first, and a certain amount of septic action will probably take place in it. It will not become clogged if the screen at the upper end is properly cared for.

The size of the second siphon, to be constructed when the third building is completed, has not been decided upon.

About one acre of filter beds will be constructed; each bed having an area of one-eighth acre; the dividing embankments being formed of the top soil which it will be necessary to remove when constructing the beds.

No underdrains will be laid at first as the material is extremely porous, but if it is found later that underdrains are necessary they will then be put in.

A dosing tank of 5,000 gallons or more capacity will discharge the sewage alternately onto any two beds which it is desired to use and cover a bed at each discharge to a depth of two or three inches.

The plans, providing for the disposal of the sewage of the institution by means of eight gravel filter beds, of a total area of one acre, submitted to the Board October 20th, 1904, were approved, and the attention of the superintendent was called to the importance of providing a proper dosing tank and of laying underdrains in case the sewage did not drain away satisfactorily from the surface of the beds.

REPORT UPON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR MT. STERLING.

At a meeting of the State Board of Health held April 27th, 1904, Mr. J. P. Force, as consulting engineer, presented plans for sewerage and sewage disposal for the village of Mt. Sterling, and asked the Board's approval. These plans were referred to the engineer of the Board who described the plans as follows:

Mt. Sterling is an incorporated village of about 1,000 inhabitants, located in the southeasterly corner of Madison County upon Deer Creek, a tributary of the Scioto River." The total area of the corporation is about 500 acres, of which 123 acres is built up.

The plans as presented provide for a system of domestic sewers and purification works. The domestic sewage from the entire village is to be conveyed by a 12-inch main sewer to purification works, to be located just within the southeasterly limits of the corporation and immediately south of London Street. The effluent from these works is to be conveyed through a 12-inch drain, several hundred feet long, to Deer Creek near London Street.

It is the intention to build about four miles of the sewerage system in the immediate future and it is expected that some 330 people will use these four miles of sewers as soon as built. The ultimate number of people which can use this system as designed is estimated at 4,000, or four times the present population of the village.

The quantity of sewage expected upon the completion of the first four miles of sewers is estimated at 25,000 gallons, while the ultimate capacity of the system is 300,000. These figures are arrived at by estimating the daily yield per capita at 75 gallons.

The sewers are to be ventilated through manhole covers in the street and also through the main soil pipes of the houses connected. Automatic flush tanks are to be provided at the ends of the sewers and underdrains will be placed under the entire system to prevent infiltration of ground water.

The purification works consist of septic tanks to hold about twelve hours flow of sewage; these tanks being built in compartments so that they can be adjusted to hold the proper amount. The tank to be built in the immediate future is 13 feet by 16 feet by 9 feet deep and divided into two compartments by planks. The capacity of this tank will be about 14,000 gallons.

The effluent from the septic tank will discharge on to contact beds. The flow on to and through these beds will be controlled by automatic devices. In the completed plant there will be fifteen of these contact beds, each 18 feet by 18 feet at the bottom and 27 feet by 27 feet at the top, and containing 3 feet of material such as cinders, slag, crushed stone or coke. It is intended, however, to build only six of these beds in the immediate future. The rate of filtration for which they are designed is 400,000 gallons daily on each effective acre of area, or one contact per day.

These plans were approved by the Board at its April meeting with the proviso that the sewage disposal works be installed at the time the sewers are built.

REPORT ON A SEWER AT NEWTON FALLS.

The trustees of the Methodist Episcopal Church at Newton Falls submitted a plan and asked for the approval of the State Board of Health in regard to connecting the water-closets of a new church they were building with a storm water drain which was already built and which discharged into the east branch of the Mahoning River. They also stated that several residents wished to use this drain as a domestic sewer.

The matter was referred to the engineer for investigation and he reported that the plan should be disapproved on account of the close proximity of the water works of Warren, and on account of the fact that mechanical filtration at Warren is probably not always efficient.

At a meeting of the Board held June 22d, the plan was disapproved as this sewer discharged within seven or eight miles of the water works of Warren and would constitute a menace to the water supply of that city if used as a domestic sewer. The trustees were advised

that if they had a sandy soil it was possible that they could install, at a small cost, a system of sewage purification by sub-surface irrigation that would be satisfactory.

REPORT ON PROPOSED STORM WATER OVERFLOW IN A MAIN SEWER AT NEWARK.

While in Newark on July 19th, 1904, the engineer of the Board learned from the president of the board of public service that the city intended putting in a new storm water overflow. The following report was made:

One of the main sewers of the city of Newark which discharges into Raccoon Creek near the foot of South Fourth Street is too small for the amount of storm water discharged into it at times and consequently overflows through catchbasins, thus flooding the streets and neighboring yards and causing much annoyance.

It is proposed to construct an overflow near the lower end of this sewer at a place where the above mentioned flooding usually occurs, this overflow to discharge into Raccoon Creek at a point about 200 feet below the present outlet for this sewer.

As this overflow would be used only in times of storm, when the sewage is greatly diluted, it was thought that it could not cause any more nuisance than was already being caused by the discharge of the present sewer, whereas it would be of great benefit to the property owners whose property was being periodically flooded. The Board, therefore, approved this storm water overflow into Raccoon Creek, July 23d, 1904.

REPORT ON PROPOSED SEWERAGE AND SEWAGE PURIFICATION FOR NEWARK.

September 10th, 1904, The Walter P. Rice Engineering Company made application and submitted plans, for the Board's approval, of a sewerage system and sewage purification works for the city of Newark. In anticipation of this application, the engineer of the Board visited Newark on September 2d, and in company with the president of the board of public service, drove about the city and inspected the site

proposed for the purification works. The following report was made:

At present there are nine or more miles of combined sewers which are used for domestic purposes by about 20 per cent. of the population, while 40 per cent., or 10,000, are said to be accessible to these sewers.

The outlets lead into Raccoon Creek, South Fork of Licking Creek and North Fork of Licking Creek, and cause a nuisance at times of low water.

The submitted plans provide for a system of separate or domestic sewers for the entire city, although it is by no means the intention to build such a system at once, but practically only that portion which lies in a newly developed area located in the northwesterly part of the city, which portion is badly in need of sewerage, but is being forced to wait until general sewerage plans for the whole city can be drawn up. The president of the board of public service states that no change will be made in the use of the combined sewers, which will be allowed to discharge as at present, and that no domestic sewers will be laid in streets now having combined sewers. If the city is to build a system of sewers and purification works it seems only proper that the old outlets should be abandoned, or used as storm water overflows, and the new works be made to intercept the dry weather flow from the old sewers.

According to the plans there will be two interceptors, one 36 inches in diameter, draining the easterly part of the city; and one 30 inches in diameter, draining the westerly part. These will meet at the purification works to be located on a forty acre lot in the south central part of the city and bounded on the north by West Poplar Street, on the east by South Sixth Street, on the south by the south fork of Licking River and on the west by Raccoon Creek. On West Poplar Street and in South Sixth Street there are about a dozen houses which are adjacent to the northeasterly part of the proposed area. It is the intention to buy but one of these houses. The location of this area is nearer to the city than would be desirable, but no other better area can be obtained without going a much greater distance from the city, which would necessitate lifting the sewage to a considerable height whereas here it is only necessary to pump it a few feet.

Considering the fact that the proposed system of sewers will be built slowly there would probably not be enough sewage reaching the purification works, for at least eight or ten years, (even if the dry weather flow from the combined sewers were intercepted), to cause disagreeable odors to those living closest to the works when the sewage was spread out over the sand filters; provided reasonable care is taken in operating these filters.

Following are the principal features of the proposed purification works:

1st. A receiving well into which the two intercepting sewers discharge and from which the sewage is raised continuously to two septic or "separating" tanks.

2d. Two septic tanks which are each 200 feet long, 40 feet wide and 10 feet deep, and hold about 600,000 gallons each.

3d. Thirteen and one-half acres of sand filter beds, each bed being about 100 feet square and containing one-fourth of an acre. The sand on these beds is to have an average depth of 4 feet and is to be obtained from the creek bed adjacent to this area. Each bed is to be underdrained by five lines of 6-inch pipe. Ample carriers for distributing the sewage over the surface of the sand are shown on the plans. There are also to be provided automatic dosing tanks, one for each of the four sand beds and each to receive the sewage from the septic tank and discharge it automatically on to each of its group of four beds in turn.

The Board approved the separate system of sewers, as proposed, September 15, 1904, with the recommendation that underdrains be laid beneath all sewers which were to be below ground water level, and that the new sewers be made to intercept the dry weather flow from the old combined sewers until such time as all streets could be sewerred upon the separate plan.

The Board also approved the method of purifying the sewage by intermittent sand filtration, after preliminary treatment in the separating or septic tanks, provided:

1st. That said tanks be divided into units holding not more than 200,000 gallons each.

2d. That suitable provision be made for cleaning out these tanks when necessary and discharging the contents upon sludge beds, and,

3d. That the sand filter beds be composed of sand of a size and quality represented by samples No. 2 and No. 3 recently submitted to the State Board of Health by The Walter P. Rice Engineering Company, and that the area of sand beds be such that the sewage will not be treated at a greater rate than 150,000 gallons per acre per day.

The proposed site for the sewage purification plant, near the junction of Raccoon Creek and the south fork of the Licking River, was approved for use until such time as, in the opinion of the State Board of Health, the quantity of sewage becomes too great to be satisfactorily treated by sand filtration upon this site.

REPORT ON SEWAGE DISPOSAL FOR THE OHIO QUARRIES COMPANY AT NORTH AMHERST.

On October 10th, 1904, Mr. W. S. Shields, consulting engineer of Chicago, Ill., submitted plans for proposed sewage purification for the Ohio Quarries Company at North Amherst, Ohio. The engineer of the Board met with Mr. Shields in Chicago on October 12th, and discussed the plans with him. The following report was made.

The proposed works are designed to purify the sewage ultimately of 300 people, who are expected to occupy the cottages of the Ohio Quarries Company, although at present there will be no more than 150 people living in the cottages. The dry weather flow of sewage, on a basis of 40 gallons per capita, would be 6,000 gallons per day at present and 12,000 ultimately.

The effluent will be discharged into Beaver Creek, a small stream nearly dry at times, which discharges into Lake Erie about 3.5 miles from North Amherst, at a point two miles west of the Elyria water works and filtration plant.

The sewers from the cottages receive some surface water, thus making them combined sewers. An overflow is provided in the plans by means of which the flow in the sewers at time of storm would pass directly to the creek.

The features of the purification plans are as follows:

First. A septic tank, 6 feet by 24 feet by 8 feet deep and holding about a day's flow. The tank effluent is to discharge continuously on to (second) a percolating or continuous filter, which is about 20 feet square, or 0.01 of an acre in extent and is 8 feet deep at its upper end and 9 feet deep at its lower end. The walls of the filter are built of dry masonry in order to allow access of air, while the bottom is to be of concrete. The filtering material is to be of some hard material which will not disintegrate under the action of water. Hard limestone, coarse gravel or hard furnace clinker are suggested. Upon the bottom of the filter will be placed a layer of filtering material, 1 to 2 inches deep, of pieces 3 to 4 inches in diameter; upon this is a 3 foot layer of material 2.5 to 3 inches in diameter; then a 1 foot layer of 1.5 inch material; then a 3 foot layer of .5 inch material, upon which are distributing troughs which are to be supported independently of the filtering medium and covered with several inches of coarse material as a protection against freezing.

The works are to be located well above the creek so that sand or

other filters may be added at any time to further purify the effluent from the percolating filter, if this proves necessary.

Percolating filters have been in use during the last few years in England and have been very successful. The principal objection to their use in this country has been their liability to freeze in winter, on account of the necessarily large openings in the wall which admit fresh air. They have not been given extensive trial, however. The designing engineer states, however, that he has already built one which is working successfully throughout the year.

The Board approved these plans November 11th, 1904, provided that sand filters, satisfactory to the State Board of Health, be added if deemed necessary by said Board after the plant has been put in use.

REPORT ON PROPOSED SEWERAGE FOR PAINESVILLE.

The city engineer of Painesville, Mr. H. P. Cumings, submitted plans and a description of a sewer for a portion of the city and the matter was referred to the engineer of the Board for examination. The following report was made.

Painesville has a population of about 5,000, with no indication of rapid increase. The Grand River approaches very near to the thickly settled part of the city on the east and then, after flowing in a northerly direction for a few miles through low uninhabited land, makes a sudden turn and again approaches the city at its northerly borders.

There are now about ten miles of sewers, used mostly for sanitary purposes, by about one-half the population. Two of these sewers discharge into Grand River north of the city at Fairport Road and St. Clair Street, and one discharges near Main Street about a mile above the proposed outlet.

The proposed sewer is 7,500 feet long, located in Erie Street. It is to be built of 20-inch pipe at its upper end and 30-inch pipe at its lower end. The outlet for the dry weather flow will be through an iron pipe extending below the water surface of the river. The sewer is to be primarily for storm water purposes, but will be used to relieve one of the present sanitary sewers and in addition will receive sewage from a few houses on Erie Street, and therefore should be classed as a combined sewer.

The flow of the Grand River is said by some to be always sufficient to care for the present amount of sewage which it receives, while

others state that occasionally the flow is so small that the sewage is noticeable. There is no evidence of a nuisance having been caused by the outlet nearest the proposed location, although it discharges as much, if not more, sewage than the proposed sewer will. From the size of the watershed it would appear that the flow would be always sufficient to satisfactorily dilute the sewage of the whole city.

The proposed plans will not increase the total pollution entering the river at present except by a small amount of sewage which comes from the few houses on Erie Street, as above mentioned. On the contrary, if anything, the present conditions would be improved, because a portion of the sewage now discharged north of the city will be discharged east of the city and four or five miles further up stream, thus affording greater opportunity for self-purification before the sewage reaches the lake, from which the water supply is taken either directly or after filtration through the beach gravel.

On the other hand the city may at some future time desire to purify its sewage and the proposed plan is not in conformity with a general sanitary system which would be desirable if the sewage were treated.

This report was presented to the Board at its meeting held April 27th, 1904, and the plans were approved upon the condition that no domestic sewage, except that from the sanitary sewer in Liberty Street south of Erie Street and from houses on Erie Street east of Elm Street, be admitted to this sewer without first obtaining the approval of the State Board of Health.

REPORT UPON PROPOSED SEWERAGE FOR PERRYSBURG.

At the June meeting of the Board Mr. Sherman, of the Riggs & Sherman Company, consulting engineers, presented plans for a system of sewerage for the village of Perrysburg and the following outline of the plans:

"In 1900 Perrysburg had a population of 1,766 according to the census. It is a suburb of Toledo, located on the right bank of the Maumee River about ten miles above the city.

"The assessed valuation is less than \$400,000 and therefore the revenues of the corporation are extremely limited.

"Occupying a bluff some fifty feet above the river, the need of sewerage has not been impressed upon the people to any great extent. Still the more progressive element of the town desires at this time to

adopt plans for a complete system with the idea of constructing a small portion each year and soon begin to reap some substantial benefits from the sewers.

"There are no water works as yet and no means of flushing sanitary sewers, and it is hardly probable that much if any construction work will be done on the sanitary system until water works are built.

"Up to the present time a few isolated and disconnected combined sewers have been built and these are now caring for the house sewage of the town and discharging into the river.

"It is not likely there are, all told, more than 30 or 40 house connections in the whole town.

"On the plans herewith submitted we have shown but one combined sewer, viz: on Louisiana Avenue, and even this is intercepted into the sanitary main outlet so that when the entire system is complete none of the house sewage will be discharged into the river until after passing through the disposal works located, as shown, in the southwestern portion of the town.

"It is the desire of the village authorities to secure the formal approval of your honorable body of these general plans, and your permission to begin the construction of the storm water sewers and defer the construction of the sanitary sewers and the disposal works until such time as a water works system has been installed, or until your honorable board deems disposal imperative.

"As will be readily understood, the total volume of house sewage now discharging into the river is extremely limited and will be until the place is provided with water works and the sewer system is in general use for the discharge of household waste.

"It may be suggested that the fact that the water intake of Toledo from the Maumee River is less than ten miles below Perrysburg should operate against granting the petition of Perrysburg.

"In answer to this we submit the following argument:

"1. It is not probable that the total volume of house sewage up to the time when water works are built, will ever reach 1:1,500,000 part of the mean flow of the waters of the Maumee River, a dilution which should be satisfactory to the Board.

"2. It is fair to state that if the water supply of the city of Toledo is in danger of pollution by the discharge of one-half cubic foot of raw sewage per minute into the Maumee River at Perrysburg, the danger is a million times greater whenever the Buffalo or east wind blows, for then the discharge from the entire sewer system of 160,000 people flows up stream past the regular water intake of Toledo.

"3. The city of Toledo, however, is preparing to protect herself against all danger whatever from pollution of her water supply by her own sewers and those of towns up the river, by the construction

of water filtration works in the immediate future; and already the preliminary legislation has been passed for the same, so that this objection, if so considered, to the discharge of the limited volume of sewage from Perrysburg, will soon be removed.

"Before concluding this petition we desire to impress upon your honorable body the fact that the present authorities of the village of Perrysburg would willingly undertake the construction of the complete system of sewers including disposal works, all in harmony with the plans and the general policy of your honorable body, yet they are prohibited from so doing at this time;

"1st. By their inability to provide the means.

"2d. By the lack of popular approval and the general knowledge of the necessity of sewage disposal.

"3d. By the absence of water works and water carriage for the dry weather flow.

"Notwithstanding these obstacles, the village authorities are firmly convinced that if given plenty of time they can accomplish in the way of the construction of a correct and complete sanitary system of sewers, all that may be required by your honorable body."

June 22d, 1904, the Board approved the building of a combined sewer in Louisiana Avenue, upon the condition that an intercepting sewer and purification works be introduced whenever in the opinion of the Board this is deemed necessary.

REPORT ON PROPOSED SEWERAGE AND SEWAGE PURIFICATION FOR SEBRING.

On February 18th, 1904, plans were submitted to the Board for its consideration, as a preliminary step toward designing a system of sewage disposal for the village of Sebring, which would meet with the unqualified approval of the Board. These preliminary plans were carefully examined and a visit made to Sebring by the engineer of the Board and an informal report made by him, which approved of the proposed sewers, but advised certain changes in plans for sewage purification, the most important of which were larger sand area and the use of a sedimentation tank instead of a septic tank; it being deemed advisable to install the most reliable known method on account of the proximity of Sebring to the intake of the Alliance water works. A copy of this informal report was sent to the consulting engineer, Mr.

L. E. Chapin, who made new plans in accordance with its conclusions and these plans were submitted to the Board for action March 7th, 1904. The following report was made:

Sebring is situated in the western part of Columbiana County and has a present population of about two thousand. The chief industries of the village are four large china potteries. The village, the topography of which is flat, is now drained by several ditches which unite and form a large one which discharges into the Mahoning River above Alliance. These ditches from inspection appear to receive considerable house drainage. As the village, following the stream, is only five miles above the intake of the Alliance water supply, it certainly affords a dangerous source of pollution.

By the state law the city of Alliance can prevent any pollution of its water supply within a distance of ten miles above the intake. The city should, therefore, not only take steps to prevent the present pollution, but should require the proper operation of any future sewage disposal plant which the village of Sebring may construct.

Quoting from the preliminary application of the engineer, dated January 18th, 1904, the following describes the proposed sewerage system: "The sewerage system proposed will be that of purely sanitary sewers, into which no storm or roof water will be taken; the pipe lines being from 6 to 15 inches in diameter and laid at an average depth of 8 feet. Manholes will be provided at all changes of grade and alignment, and automatic flush tanks located at the head of lateral sewers. These sewers will be mostly laid in the wide alleys, and all will be underdrained with hard tile drains, bedded in porous material to about 6 inches above the drains, and on which bed the pipe sewers will be laid.

"The main sewer will be 15 inches in diameter, laid on a grade of one foot to the thousand and reaching the disposal lands at a point about 3,000 feet from the village limits and something over one mile from the main portion of the village.

"The entire village lying low, with flat surface grades, and built upon a stiff clay soil, it is thought desirable to sub-soil drain all sewer lines so as to in a measure reduce the level of the ground water. This we propose to do by construction of hard tile drains under the sewer lines, and bed such tile in porous material of pottery waste, gravel or cinders, to a depth of 6 inches above the drain tile, and then bed the sewer lines on this material; these sub-soil drains to have an outlet into the creek above the disposal works.

"The village authorities state that not more than 1,200 people will use the sewers after the system is constructed. At 60 gallons per capita the daily flow would be 72,000 gallons, while at 100 gallons per capita it would be 120,000 gallons.

"The proposed plans consist of

"1st. A sedimentation basin 12 feet wide, 50 feet long and 5 feet deep, holding 22,000 gallons, or from five to eight hours' flow. Means are to be provided for pumping the accumulated sludge from the bottom of the tank on to the land or to septic beds.

"2d. A dosing chamber of 30,000 gallons capacity and provided with four automatic siphons working in rotation; each siphon controlling the flow on to a group of four beds.

"3d. Sixteen sand filters each having a surface area of about 6,000 square feet, making a total of two acres. The dividing embankments are of earth and have a slope of 2 to 1. Each filter is to be underdrained by three lines of 3-inch tile, over and around which is to be placed a layer of gravel not over 6 inches in thickness and upon this is to be a 3-foot layer of sand of effective size, from .15 m. m. to .25 m. m.; thus making the total depth of filtering material cover the underdrains 42 inches. The sand is to be of a quality and size satisfactory to the Board.

"With a daily flow of 120,000 gallons each bed would be covered to a depth of about 2 inches once each day and the rate would be 60,000 gallons per acre per day, which, with previous sedimentation and selected filtering material should give very good results."

The Board approved these plans March 21, 1904, with the understanding,

1st. That specially prepared sludge beds be used to receive the accumulated sludge from the bottom of the tank, instead of pumping this sludge upon land where a sudden rain might wash it into the creek, and,

2d. That additional filter beds, of size and material satisfactory to the State Board of Health, be constructed when the population using the sewers materially increases.

The attention of the village officials was called to the importance of proper care of the works, especially as imperfectly purified sewage would seriously endanger the water supply of Alliance.

REPORT ON SEWERAGE AND SEWAGE DISPOSAL FOR SHREVE.

The village of Shreve submitted specifications for sewerage and sewage disposal with the request that the Board approve or criticise the same. These were referred to the engineer of the Board, who visited Shreve April 16th, inspected the ground and consulted with

the mayor and the engineer in the employ of the village, after which the following report was made.

The total population of the village is about 1,000, of which 700 are so located that it will be possible for them to use the sewers, although but 200 will use them in the near future. The sewerage system is to be used for domestic sewage only and consists of one sewer 3,520 feet long, extending mostly through the principal street, with an outlet at the purification works by the side of Shreve Run just outside of the built-up portion of the village. The upper portion of the sewer is of 8-inch pipe, the central 12-inch, and the lowest portion 15-inch.

Shreve Run, though having a comparatively small watershed, is fed by springs, so that there is a flow of clear water all the year round which is used by farmers below for stock watering.

The village is situated on a side hill so that very steep grades are made necessary except at the lowest portion of the sewer. The plans for sewage purification as first submitted did not appear to be practicable, and were revised according to the verbal suggestions of the engineer of the Board. As later submitted the works consist of a septic tank holding 4,500 gallons, and a flush tank which is to receive the flow from the septic tank and discharge intermittently on to four sand filters, each 60 feet square, thoroughly underdrained into a 10-inch tile leading into Shreve Run.

The filtering material from which the beds are to be made was inspected and found to be clean sharp sand of size and quality very favorable for sewage purification. It may be had in abundance near by. The area to be provided is ample for present needs. The depth will be 3 1-2 to 4 feet over the underdrains.

The nearest houses are on Well Street about 400 feet distant and much higher than the proposed location for the works, and if the works are properly taken care of no annoyance to the people occupying these houses need be created.

The plans were approved April 27th, 1904, upon the condition that as the size of the village increased the area of filtering material should be increased according to plans satisfactory to the State Board of Health. It was also suggested that if all surface water and cellar drainage were to be excluded from the sewers, and if the underdrains were to be used in those portions laid below ground level, the size of the sewers might safely be reduced, and a by-pass be placed near the end of the main sewer so that the sewage could be discharged directly into the dosing tank without first passing through the flush tank, if it were desired at any time not to use the latter.

REPORT UPON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR SPRINGFIELD.

On October 15th, 1904, Messrs. Snow and Barbour, as consulting engineers for the city of Springfield, submitted plans and a report upon proposed sewerage and sewage disposal for that city. In anticipation of these plans being submitted, the engineer of the Board visited Springfield, July 30th, 1904. The plans were referred to him and the following report made:

The present population of Springfield is about 45,000. From ten to fifteen thousand now use the present sewers. These sewers are on the combined plan and have been constructed in an unsystematic manner during many years. Many storm water drains are illegally made use of for domestic sewers. All the present outlets are located in the thickly settled part of the city, and while all of these outlets are objectionable several of them create conditions which are disgraceful and which are dangerous to health.

Present conditions are fully brought out in a report of the engineer of the State Board of Health, made in 1903, in connection with an application then made by the city for approval of sewers in State Street, Clifton and East Street and Lagonda Avenue, to discharge into Buck Creek and Mill Run, the two small streams which pass through the city, and now create most serious nuisances.

The action of the Board in regard to the above sewers was to approve the State Street sewer for storm water only, and to disapprove of the construction of the Clifton and East Street sewer and the Lagonda Avenue sewer. The following notice was also sent to the city: "The Board would urge upon the officials of Springfield the importance of making provision in the near future for a comprehensive system of sanitary sewers, with the collection of the sewage at some point where, when necessary, sewage disposal works may be constructed." A copy of the report of the engineer of the State Board of Health was also sent to the city officials.

Since the above communication was sent to the city of Springfield, the discharge of Mad River has been measured and the probable minimum discharge estimated. The actual gagings, which covered the period from January 1st to date, show an average dry weather flow of about 125 cubic feet per second. This flow would not satisfactorily dilute the sewage of more than twenty to twenty-five thousand people, or one-half of the present population of Springfield. Therefore, with this flow and ten or fifteen thousand people now using the sewers, the

proposed sewers when built could not be used to any great extent without sewage purification works. But a more important consideration is that the rainfall during the present year in the general vicinity of Springfield, according to the United States Weather Bureau records, has been equal to or greater than the average, so that the flow of the river during dry years would probably be entirely inadequate to care for the sewage of even ten thousand people, or of one-fifth of the population. As this number of people is already connected with the present sewers it is important that the sewage purification works be constructed as soon as the new sewers are built; otherwise the construction of the new sewers would simply mean that the nuisances now going on in the immediate vicinity of the city would be transferred to a point on the river below the city.

As shown on the plans submitted, and as described in the detailed report of the consulting engineers, a system of sewers has been designed to provide domestic sewerage for the entire city for an estimated period of forty years in the future; while sewage purification works have been designed to purify the sewage for an estimated period of twenty years.

The proposed sewers are all on the separate plan, being designed for house sewage only. The present combined sewers, having a total length of about twelve miles, will still be used, however, and will be connected to the proposed intercepting sewer through automatically regulated overflows which will discharge the flow of these old sewers in times of storm directly into Buck Creek or Mill Creek. There will be some ten or twelve of these overflows, but the proportion of sewage discharged through them if all future sewers are built on the separate plan, as proposed, will be small; and considering the present necessity of properly collecting and treating the dry weather sewage it would seem that these storm water overflows, though not desirable, could not reasonably be disapproved, as this would mean a large additional expense to the city. It would be well, however, to provide that the adjustment of these overflows, when built, be subject to the approval of the State Board of Health in order to prevent too much sewage being discharged into these small streams.

The proposed sewers are designed on a basis of a population of 160,000 in 1945, and a flow per capita of 75 gallons per day, two-thirds of the population using the sewers. One-half of the daily flow is expected to pass off in eight hours. The larger sewers are designed to flow two-thirds full at the end of forty years, and the small sewers one-half full at that time.

It was found that about two-thirds of the sewage of the city can reach the proposed site for disposal works by gravity, while that from the remaining one-third, near the valley of Buck Creek, will have to

be pumped. It is therefore proposed to build two intercepting sewers; first, a high level sewer, commencing in the southeasterly part of the city, paralleling Mill Run to Main Street, and thence westerly on Main Street to the west corporation line where it unites with the low level interceptor, forming a 36-inch outfall sewer which extends to the disposal works; and second, a low level sewer in the valley of Buck Creek from Lagonda Avenue to the corner of Main and Walter streets, where, by means of an automatically operated, electrically driven pump, the sewage will be raised into the outfall sewer.

Although the pumping station will be located near the entrance of Snyder Park, a free pleasure resort and picnic ground, no fears of objectionable odors, judging from other well conducted sewage pumping stations, need be feared.

No plans for storm water drainage are included in the proposed scheme but the disposal of storm water by means of paved streets and natural water courses, using short storm sewers where necessary, will, as stated in a communication already sent by the State Board of Health to the city, solve this drainage problem in a much more satisfactory and economical manner than would be possible if the separate system of sewers is not adopted.

The proposed division of sewer districts is in accordance with the laws of Ohio, each district having access to an intercepting sewer.

The method of sewage purification proposed is sand filtration after preliminary treatment in septic tanks. The plan will consist of tanks having a capacity of 1,500,000 gallons and twenty-four acres of sand beds.

As sand filtration is acknowledged by sanitary engineers to be the safest and most reliable method of sewage purification the city is fortunate in having an abundant supply of good sand near the proposed site, for use in building the plant.

The efficiency of the septic tank in removing the suspended matter and preparing the sewage for subsequent filtration, while not always as great as is claimed, is, when the tank is operated properly, of distinct value for these purposes; but as a liberal sand area has wisely been provided, in the proposed plans, no great dependence need be placed on the tanks.

The site for the purification works is on a tract of land, of about thirty acres, located on the southwestly corporation line south of the Dayton Pike and of the Peoria Division of the Big Four Railroad, and extending southerly to a deserted quarry and lime kiln near the old Dayton Road. This tract is convenient of access by means of a sewer along the railroad from Main Street and there are large deposits of sand and limestone near by. There is one house on this tract which would be purchased by the city, and there are but three or four other houses within 1,000 feet and these could probably be pur-

chased, or their owners recompensed, for any possible damage, at slight expense. All the available sites were carefully inspected by the engineer of the State Board of Health during his visit, and the site now proposed seems to be decidedly the best.

The following table shows the estimated population, and also the estimated flow of sewage for the next forty years:

YEAR.	POPULATION.	GAL. PER DAY.
Present.....	47,000.....	550,000
1910.....	56,000.....	2,800,000
1915.....	65,000.....	3,250,000
1920.....	75,000.....	3,750,000
1925.....	86,000.....	4,300,000
1930.....	100,000.....	5,000,000
1935.....	116,000.....	5,800,000
1940.....	136,000.....	6,800,000
1945.....	160,000.....	8,000,000

The septic tanks as designed are five in number, each being 98.5 feet by 55.5 feet by 7 feet at the upper end and 9 feet at the lower end, and holding about 300,000 gallons. The inlets and outlets are so designed as to make the entire cross section available. The depth is sufficient to allow of a reasonable variation in solid matter; and a slope is given to the bottom of the tanks from the inlets toward the outlets, which would tend to prevent the sudden checking of velocity and subsequent deposition of large amounts of sludge near the inlets. The tank is supplied with suitable drainage so that the sludge can be drained by gravity on to a sludge bed, if this becomes necessary. When the flow becomes 4,300,000 gallons, as is estimated at the end of twenty years, the septic period will be slightly over eight hours.

The effluent from the septic tank, after being aerated through an aerator of approved design, will enter a dosing tank of 40,000 gallons capacity with four alternating discharging siphons. Each siphon discharges through a pipe which leads to a group of six beds; the discharge on the one or more beds in each group being regulated by hand gates.

There are 24 sand filtration beds of one acre each, with a minimum depth of filtering material of 3.5 feet. Seven continuous lines of under-rains, from 4 inches to 8 inches in size, pass through each row of four beds and discharge into a main underdrain.

The sand to be used has an effective size of .25 mm. to .40 mm. with a low uniformity coefficient and is of excellent quality for the purpose proposed.

The system of dosing, as designed, will cover the beds to a slight depth at frequent intervals. Better results can probably be obtained

in this manner than by large doses applied less frequently or by even continuous application.

Twenty years hence, with a flow of 4,300,000, the beds would be worked at the rate of about 180,000 gallons per acre per day, and with a population of 86,000, two-thirds using the sewers, this area would treat the sewage of about 2,000 people per acre. These are reasonable estimates as the growth of the city cannot of course be actually prophesied.

At a meeting of the State Board of Health, held October 20th, 1904, these plans (as shown on drawings and described in a report submitted by Messrs. Snow and Barbour, engineers, October 15th, 1904) were approved provided sewage purification works, satisfactory to the Board, were built before use was made of either of the proposed intercepting sewers.

REPORT ON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR DISTRICT No. 36, TOLEDO.

In 1901 the State Board of Health disapproved plans for Sewer District No. 36 in the city of Toledo until satisfactory plans for purification of the sewage of that district should be submitted to and receive the approval of the Board.

The city engineer of Toledo presented plans for disposal of the sewage of District No. 36, which were referred to the engineer of the Board for investigation. He visited Toledo March 30th, 1904, and the following report was made:

Acting upon the decision of the Board the city of Toledo has purchased twenty-four acres of land bordering on Swan Creek. The district at present contains only eight houses, but it is intended to construct sewers as a means of developing the territory. Walbridge Park, a summer resort, patronized by a large number of people, is included within the limits of the district, but it is not intended to connect this park with the proposed sewerage system. The southerly part of the district borders upon the Maumee River a short distance above the water works intake and it is therefore necessary to convey the sewage in a northerly direction to Swan Creek, at a much greater expense than if it could be discharged into the river.

Upon the twenty-four acre lot owned by the city it is proposed to construct upon the sand stratum which immediately underlies the top soil of this area, four filter beds, each 25 feet square, making a total

area of .06 acres. Four lines of soft tile underdrains, surrounded by cinders, are to be laid in each bed and the effluent is to discharge into Swan Creek.

A sample of the filtering material was analyzed and found to have an effective size of 0.10 mm. and a uniformity coefficient of 3.4. The sewage is to be distributed over the bed surfaces through one-half tile pipe and the flow diverted from one bed to another every day.

The plans as submitted will take care of the small amount of sewage which will, in the immediate future, be discharged from District No. 36.

The Board approved the plans, April 11th, 1904, upon the condition that as the population using the sewers became greater, the disposal plant should be enlarged to such size and in such manner as the State Board of Health might deem necessary.

The attention of the city engineer was also called to the importance of having tight joints in the sewers and of providing underdrains where sewers are placed below the ground water level, in order that the disposal plant be not flooded with ground water.

REPORT ON PROPOSED SEWER FOR PRIVATE HOSPITAL AT UHRICHSVILLE.

Dr. J. A. McCollam, health officer of Uhrichsville, notified the Board that he wished to construct a sewer for a private hospital to be built and asked the Board's approval of same. The engineer visited Uhrichsville on September 7th, 1904, to make the necessary investigation. The following report was made:

Dr. McCollam proposes in the near future to build a hospital on Eastport Avenue just outside the northerly corporation limits of the village. To obtain drainage for the hospital, and also for five or six houses on Eastport Avenue, he proposes to build an 8-inch sewer, 2,000 feet long, in this avenue and to discharge it into Little Stillwater Creek a few hundred feet above the entrance of this creek into Big Stillwater Creek.

The sewer will receive all sewage and cellar drainage from the hospital, but cellar drainage only from the other houses until such time as the latter are provided with a public water supply and modern plumbing.

Little Stillwater Creek already is greatly polluted by sewage from both Dennison and Uhrichsville, and no more sewage should be allowed to enter it even near its mouth.

The proposed sewer could probably be easily connected with purification works when such are built.

The Board approved the construction of this sewer September 13th, provided its outlet be into Big Stillwater Creek instead of Little Stillwater Creek, until such time as purification works are built for the village.

REPORT ON PROPOSED SEWER IN PARISH STREET, UHRICHSVILLE.

It was learned that the village of Uhrichsville was constructing a sewer and outlet, without the approval of the State Board of Health. The engineer visited Uhrichsville September 7th and made an investigation. The following report was made:

The sewer which is now under consideration is located in Parish Street. It is composed of 12-inch pipe, will be about one-half mile long and will receive the domestic sewage from about twenty-five dwellings. No storm water will be discharged into it. It is possible but, at present, not probable that certain territory adjacent to Parish Street may be developed and drained into this sewer.

The sewer will discharge at the foot of Parish Street into Big Stillwater Creek, at a point 1,500 feet above the present principal outlet into this creek, which is shown on page 457 of the annual report of the State Board of Health for 1899.

There are six or eight houses within 500 feet of the proposed outlet, the nearest being 200 feet distant. It is therefore important that any sewage entering the river at this place should be carried into the current and discharged below the surface.

Big Stillwater Creek has a watershed of about 350 square miles, and while the average low water flow is 20 to 30 cubic feet per second it sometimes happens that the flow is much less than this; in fact not enough to supply the village with water. Big Stillwater Creek near the present, as well as the proposed outlet, is influenced by backwater from the Tuscarawas River, which it enters two miles below, so that there is always a fair depth of water in the stream.

The present discharge of sewage into Big Stillwater Creek, which is much greater in amount than that proposed, was causing no nuisance at the time of inspection (when the flow of the stream was 20 to 30 cubic feet per second) except upon the bank in the immediate vicinity of the outlet where much filth was deposited.

The river water being at all times extremely turbid and containing much floating waste material from the coal mines, the discharge of sewage even in great quantities would have no effect upon the appearance of the stream; but there is danger that the river and river bed may in time become so saturated with sewage that offensive odors will be created, as is already the case with Little Stillwater Creek which receives the sewage of Dennison and part of Uhrichsville.

There is no population near Big Stillwater Creek below the village. The water is not used for a public supply until Zanesville, on the Muskingum sixty-nine miles below, is reached.

The Board voted to approve this sewer September 13, provided:

1st. That the outlet be carried by an iron pipe into the current of the stream so that the sewage would not come in contact with the banks, and,

2d. That an intercepting sewer be constructed, when considered necessary by the State Board of Health, to convey the sewage from this sewer farther down stream to purification works, or to a point where it can be inoffensively discharged into the creek.

REPORT ON PROPOSED SEWERAGE FOR WEST CARROLLTON.

It having come to the attention of the State Board of Health that the village of West Carrollton contemplated building a storm water sewer, the village was asked to submit plans showing the proposed work. These plans were referred to the engineer of the Board and the following report was made:

The village of West Carrollton, having a population of about 1,000 is located in Montgomery County on the Great Miami River a few miles south of Dayton.

The village has a total area of 65 acres, a large portion of which drains into the Miami Canal. One main sewer, 30 inches in diameter and about three-fourths of a mile long, is to be built. It has a capacity of 36 cubic feet per second and is designed on the basis of a maximum rainfall of 2 inches per hour, 60 per cent. of which is assumed to reach the sewer. It is probably large enough as the village is flat and has a gravel subsoil.

The sewer is laid under a "hydraulic" canal which runs parallel to the river and the outlet is shown on the plan as being at the top of the river bank.

March 7th, 1904, the Board approved the plans for a storm water sewer with outlet into the Great Miami River upon the condition that no domestic sewage should be discharged into the sewer without the permission of the State Board of Health.

REPORT ON PROPOSED SEWERAGE FOR WILLOUGHBY.

The village of Willoughby made application, through its consulting engineer, Mr. J. C. Ward of Painesville, for approval of a sewerage system and submitted plans for same. These were referred to the engineer of the Board, who visited Willoughby March 7th, 1904. The following report was made:

Willoughby is a village of about 1,800 inhabitants, located on the Chagrin River about three miles south of Lake Erie. The village at present has no sewers except a few private drains discharging into the river at various points. It is said that no nuisances have been caused by these drains.

It is proposed to build a sewerage system covering nearly the entire village, which will be used by at least 1,500 people. Complete plans of this system have not been submitted, but the general plan shows that the sewage is all to be collected in a 15-inch trunk sewer and conveyed to the Chagrin River at a point about a mile below the edge of the built-up portion of the village. Though the country is very sparsely settled below the village there is one house within a few hundred feet of the proposed point of discharge, the occupants of which might be annoyed unless the outlet sewer were provided with an iron pipe discharging under water, or unless it were carried further down stream.

Near the proposed outlet is land which is available for sewage purification if necessary. Judging from the extent of the watershed of the river, however, and also from the statement that this stream is largely fed by springs, it is thought that the flow is ample to satisfactorily care for the sewage of 1,500 people. The river is used to some extent for stock watering purposes below the proposed location for the outlet.

This report was referred to the State Board of Health at its meeting, April 27th, 1904, and the proposed plan for a trunk sewer to discharge into the Chagrin River was approved provided:

1st. That the outlet pipe be so located and constructed that no nuisance will be caused to those living nearest to it, and,

2d. That purification works, satisfactory to the State Board of Health, be installed when deemed necessary by said Board.

REPORT UPON A PROPOSED SEWER IN MCGUFFEY STREET, YOUNGSTOWN.

At the October meeting of the Board the member residing at Canton was appointed a committee to visit Youngstown and investigate the proposed sewer in McGuffey Street, that city. He visited Youngstown October 28th, 1904, and got such information as was available in regard to the proposed sewer in McGuffey Street. The following report was made:

The course of McGuffey Street is generally parallel with that of the Mahoning River. Its sewer could have no outlet into the river, nor into any existing sewer. At a point about 5,800 feet from the river this street crosses Crab Creek, and it is proposed, for the present, to admit the flow of the sewer into said creek.

For some years there have been three sewer outlets into the creek; two above McGuffey Street and one below. The water in the creek is also much discolored by manufacturing wastes. Crab Creek drains about fourteen square miles. There is an active stream of running water at all times. The high water from rains and thaws overflows the valley several hundred feet in width. In this low ground, and along the course of the creek from McGuffey Street to the river, there are no residences.

The wisdom of building an intercepting sewer along the course of the creek was universally admitted. As a matter of fact, several years ago the city engineer made plans for such a sewer. The estimate was \$24,500. Sewers are paid for by a tax on the districts in which they are located, and the certainty of a negative vote led to the abandonment of the proposition referred to. This vote would be cast by householders in very moderate circumstances who are about the only residents of the district between McGuffey Street and the river.

But now comes McGuffey Street, higher up, and giving access to a more desirable territory and needing immediate drainage. In this vicinity there is considerable territory inside the city limits, as well as some now outside, which must be added to the taxing district using a Crab Creek sewer. The owners of this more attractive property would be more able to pay for a trunk sewer, and it would be only just that they should bear their share of the expense when that is incurred. The part of this region that could drain into the McGuffey Street sewer is not very considerable.

About 1,000 feet east of Crab Creek, on McGuffey Street, on a commanding eminence, a charity hospital has been established. The

building and grounds are the gifts of generous benefactors. The need of a sewer is accentuated by the sanitary requirements of this institution.

The city engineer states that the length of the proposed sewer is about 2,000 feet; that, aside from the Crittenton Home, about thirty-five houses on McGuffey Street could use the sewer; that about one hundred lots on side streets might be drained into it; and that there are only about fifteen houses on these side streets, and the latter would not be sewerred for several years to come.

The reasons locally urged for permitting a temporary outlet into Crab Creek may therefore be summarized thus:

1. The urgent need of drainage for the Crittenton Home and for residences on the street.
2. The impossibility of sewerage in any other direction, and of utilizing any existing sewers.
3. No likelihood of an intercepting sewer, with the present taxing district.
4. The justice of requiring the more valuable property, higher up, which is being substantially developed, and which must ultimately constitute a part of this taxing district, to pay an equitable share of the cost.
5. No residences near the channel of Crab Creek, and no sickness has ever been traced to it, although the stream is already much polluted both by sewage and manufacturing wastes.

Mindful of the prompt and cordial manner in which the authorities of Youngstown have always co-operated with the State Board of Health it was suggested that those in present authority favor the Board with an opinion in writing. In response to this request a letter was received from Mr. Wm. H. Baldwin, a large benefactor of Youngstown who has been noted for keeping intelligent sanitation conspicuously in view; and also a letter signed by the members of the board of health, the health officer and the chemist of Youngstown, in which they stated that, considering the circumstances, they were of the opinion that the emptying of the sewage into Crab Creek would not materially increase the danger from contamination and that they would advise that this be permitted until such time as it could be taken care of in a better manner.

In view of all the premises, the Board, on November 25th, 1904, approved the outlet for the McGuffey Street sewer provided the city of Youngstown, by corporate action, agreed to build a satisfactory intercepting sewer for the Crab Creek district when, in the opinion of the State Board of Health, such action should become necessary.

REPORT ON A CHANGE IN THE OUTLET FOR THE NORTH- WESTERN SEWER DISTRICT OF ZANESVILLE.

In October, 1901, the Board approved plans for a sewer proposed for the Northwestern Sewer District of the city of Zanesville, subject to the condition that the sewage be carried to the river and a submerged outlet be constructed.

On May 16th, 1904, the board of public service of Zanesville made application for the Board's approval of a change in these plans, stating that this change was necessitated by the impossibility to get bids for the construction of the originally planned sewer, which was to run several hundred feet through quicksand in which a brick sewer lay and below which the new sewer would have to be constructed.

The member of the Board residing in Zanesville made an investigation and the following report:

This district comprises the best residence portion of the city. The same system was presented some two or three years ago, with an outlet below the dam. The proposed outlet is .8 of a mile below the present intake and will not, it is believed, endanger the present water supply. Furthermore, the city of Zanesville is earnestly seeking a new (well) supply. There would seem to be no objection to allowing the city to discharge sewage at the proposed point, and the people and the board of public service greatly desire it.

June 8, 1904, the Board approved the change in outlet, said outlet to be into the Muskingum River at the foot of McIntire Avenue.

REPORT ON PROPOSED SEWER IN NORTH SEVENTH STREET, ZANESVILLE.

The application for approval of a sewer in North Seventh Street, together with plans for this sewer, was submitted by the city engineer of Zanesville on November 25th, 1904. Later, a map of Zanesville, showing other sewer outlets was obtained. The engineer of the Board visited Zanesville on November 26th and looked over the ground in company with the member of the State Board residing there. The following report was made:

A large portion of the sink drainage from houses on North Seventh

Street is now disposed of by discharging it into paved gutters, through which it flows into a short storm water sewer at the end of this street and discharges into the Muskingum River. It is possible that slops and other household wastes are sometimes mixed with sink drainage. The end of North Seventh Street is about one-half mile below the water works intake. About three-fourths of a mile below the end of North Seventh Street is the Government dam, which holds the water back for several miles above the city.

At Underwood Street, about 1,500 feet below the water works intake, is another sewer where large quantities of sewage are discharged.

The other sewers above the dam are at McIntire Avenue and Market Street, located 400 and 6,500 feet, respectively, below the water works intake. The proposed sewer in North Seventh Street will be 18 inches to 36 inches in diameter. At present it is planned to build about 2,000 feet of this sewer, but it is possible that in the future this will serve to drain a large and thickly settled district in the vicinity of North Seventh Street.

While the sanitary conditions on North Seventh Street, as regards the disposal of sink drainage, are decidedly bad, it seems more important to avoid the pollution of the water supply of the city than to improve these conditions.

A study of the records of the flow of the Muskingum River at Zanesville shows that the discharge is sometimes as low as 150 cubic feet per second. Assuming the average depth of backwater above the dam to be 15 feet, and the average width of the river to be 300 feet, the velocity would at times be only .03 of a foot per second. With this small velocity a heavy wind up-stream could easily cause a surface current from the sewer outlet to the water intake.

In fact, at the time of inspection, although only a moderate breeze was blowing a float placed opposite the location of the proposed sewer outlet immediately started up-stream, and it is probable that this float would have reached the water supply intake in about one hour.

Although it is true that the sewers which now discharge above the dam are a menace to the water supply of the city, it does not seem as if conditions ought to be allowed whereby further pollution is made possible.

The proposed outlet for a combined sewer at the foot of North Seventh Street was disapproved by the Board on December 27th, 1904, until the city of Zanesville should take steps to procure a new source of water supply or to filter the present water supply.

MISCELLANEOUS REPORTS

REPORT ON AN INVESTIGATION OF TYPHOID FEVER AT
ASHTABULA.

The board of health of Ashtabula reported many cases of typhoid fever and the State Board of Health made an investigation as to its source. The bacteriologist and chemist of the Board visited Ashtabula May 3-6, and the following report was made:

In response to a call by Dr. A. W. Hopkins, the health officer of Ashtabula, several of the physicians assembled on May 5th, discussed the situation at some length, and furnished then and at other times all assistance and data possible. The information obtained at the meeting, together with that obtained previously and subsequently, is embodied in this report.

Ashtabula, with a population of 12,749 (1900 census), is located on Lake Erie, and practically consists of two towns, one at the harbor and the other a short distance back from the lake. About one-half of the population has access to sewers and the sewage empties into the Ashtabula River, which is a sluggish stream in its lower course as it passes the city. The river empties into the lake at the piers and some 3,500 feet to the eastward of the intake of the water works. The water of the public supply is pumped to the city without treatment, and is in general use by the population. For a more complete description of the sewerage and the water supply reference is made to the Annual Report of this Board for 1898, pages 546 and 547.

There have been occasional cases of typhoid fever for some time, but no serious outbreak in recent years until the present winter. Since February 1st, some 150 cases have been reported to the health officer. There had been 14 deaths from typhoid fever, or complications immediately following, and the 15th death resulted just after the investigation. It was said by the physicians that some of the cases had been reported to the health officer early in the disease, and that later these patients had rapidly recovered with only a short run of fever, and they doubted whether these were typhoid although simulating it very closely at the outset. Therefore it is probable that a portion of the 150 cases reported were not typhoid. But on the other hand it cannot be doubted that some cases of true typhoid were unreported although efforts had been made to get the reports, which are not compulsory. During the investigation, cases were mentioned of unquestioned typhoid fever that did not appear on the recorded list at the health office. With 15 deaths and only 150 cases the fatality would be ten per cent. which is doubtless too high, and in addition it was the

opinion of the physicians that the disease was generally of a moderately mild type. A death rate of 8 per cent. would make the number of cases approximately 190, and it is probable that if all the cases could have been accurately determined this would have been more nearly the correct figure for the cases.

It was early found that a complete investigation by ascertaining the detailed data of each case would be impossible for the reason that Ashtabula contains a large number of Slavs, Swedes, Finns, Italians, etc., who do not speak English, have unintelligible names, and live with several families or parts of families under one roof. They often pay cash for each medical visit and change physicians at will, accordingly information concerning these cases was largely wanting.

SOURCE OF INFECTION.

Milk—It was found that the typhoid cases were distributed over every milk route in the city, with no unusual number on any route, and in many cases the milk was obtained from private cows. One physician reported that with his cases the milk used had come from sixteen different supplies. In those cases where ages were obtainable it was found that less than 25 per cent. were children under twelve and that many of these were in schools supplied with city water.

The infection was apparently not one from milk.

Secondary cases in the same house—There were homes in which two or more members became sick within a few days of each other—evidently from infection at the same time, but there were only a few cases in which a second case followed the first after a period of ten days or more.

The evidence shows that the great majority of cases were primary and did not receive their infection from a previous case in the same house.

Water from private sources—While some private wells and springs are in use, hardly a one could be located with two cases among its users, and as previously indicated, the general use of the city water afforded opportunity for many to use it during the day who had a private source at home. Efforts to locate definite cases that had used exclusively any other than the city water resulted in failure almost without exception.

Suspicion was especially directed towards the Bush well on West Street where a number of cases of a doubtful character followed each other at intervals. Water is obtained from a private dug well, and the discharges from the first case had been emptied into the privy. It was said that high water overflowed the yard and afforded opportunity for material to be carried from the privy into the well, but later

it was learned that this was not the case. However, a sample from this well was taken and the analysis (No. 3631) appended indicates that the water had nothing to do with causing the typhoid at that house. It might be called a usable water, but on account of the influence from neighboring privies (see chlorides and nitrates) the analysis indicates the water may become a source of danger at some indefinite time in the future when the soil becomes so polluted or open as to fail to purify, and therefore it is advisable not to use the well but to abandon it.

One case (a teacher) was said to have used only boiled water, and drank tea from a bottle when at school. One man claimed to have used exclusively spring water, but the physician thought he had nursed a brother-in-law for a few nights. One woman used well water exclusively, but had been nursing other cases. A number claimed to have used only well or spring water at home, but at school or work they used city water.

Water from the public supply—As far as could be learned the cases, almost without exception, had used more or less city water, and many of them used it exclusively.

The cases were nearly equally divided as to sex.

No undue preponderance of cases appeared in any profession or calling and they were distributed among all classes of people.

The schools in the upper city began using spring water about the first of April, while the schools at the harbor did not. It was found that there was a falling off in the number of cases among children in the upper city in April, compared with the harbor.

As the cases were reported to the health officer, Mr. J. W. Robinson, the sanitary policeman, had, in a commendable manner, plotted them on a map of the city by sticking pins at the proper points. This map was very helpful. At first sight the cases appeared strangely grouped, but it was found they closely followed the lines of population and the mains of the public water supply.

From as many of the individual physicians as could be seen in so short a time, the approximate date of attack was obtained for 156 cases. There were a few scattering cases in January, but from the latter part of that month until the time of the investigation there was a fairly continuous outbreak of cases with intermissions of only two or three days at a time. With the exception of a case on January 1st, two on January 5th, and one each on January 15th and 16th, the date of attack of the 156 cases on which information was obtained is shown on the accompanying plate.

All the evidence points to a general and continuous source of infection that was active from the middle of January on. That source was a polluted public water supply.

The Ashtabula water supply is open to sewage pollution whenever the currents carry water from the mouth of the river at the piers westward 3,500 feet to the intake of the water supply, and no purification is at present provided other than the protection by natural dilution and a dependence on the prevailing eastward currents in the lake. Opportunities for typhoid pollution of the Ashtabula sewage existed, for there had been cases in the city during the fall and early winter.

The question arose as to whether the infection was due to very unusual conditions or whether it might occur at any time, and further information was sought along this line. The severe winter caused the river and lake to be frozen over for a long period (the ice was not carried away from the mouth of the river until April 18), and there is no direct evidence available as to the direction of the currents when the harbor was covered with ice.

There were two thaws and rains when freshets occurred in the river, but the ice was so solid it did not break up but heaved and the water went out under the ice with increased velocity through the channel which is 21 feet deep. The dates of these high waters were January 22d and February 7-8th. Other heavy rainfalls were on February 28-29th, March 3d, March 25-26th, and March 31st. The dates of these rains are indicated on the plate, and it will be noticed that the cases responded by an increase after a period of from ten to twenty days. A sample of the city water was collected by the local board of health on March 1st, and the examination of it reported upon at the time showed serious pollution. In this connection it is worthy of mention that the highest point in the curve of cases by weeks was reached in the week ending March 19th.

It appears that the washing out of the accumulated sewage in the lower river by the high waters after rains did have a direct bearing on the increase in the number of typhoid cases. It may be true that a greater effect was produced because the water went out under the ice, but it is also true that the present arrangements as regards water supply and sewage are dangerous to the health of Ashtabula, for the water supply may be seriously polluted at almost any time if various circumstances combine to bring the sewage to the intake.

It is not out of place that a word of warning be sounded at this time in reference to the possibility of typhoid trouble from another source than the public supply this summer. There were quite a number of cases at houses without sewer connections. The stools and urine from these patients were not disinfected properly in all cases if any disinfection was attempted in part of them, and with the advent of flies the privies will be a source of danger, and especially so among those people where little care is taken to protect food from flies. It is possible that serious trouble may result unless sanitary precautions are taken.

Samples of the city water were taken May 4-6 and the analysis shows some variation as regards the amount of organic matter present and indicates that the water is not pure lake water unpolluted, but the absence of intestinal bacteria and the number of bacteria indicates that conditions were such on those three days that the water at the intake was not polluted with sewage. (For a report upon these samples, see laboratory report upon water supplies.)

CONCLUSIONS.

The investigation indicates that this epidemic of typhoid was due to the use of an unpurified and polluted public water supply.

The water supply was polluted from the sewage of Ashtabula almost if not quite continuously from the middle of January until as late as the middle of April, and possibly longer.

The number of cases increased in due time after high waters caused the sewage laden waters of the lower portion of the river to go out under the ice.

The present conditions of water supply and sewerage at Ashtabula are such as to stand a menace to the health of the city, although under favoring circumstances of nature the water may be usable more or less of the time.

At a meeting of the State Board of Health held June 22, 1904, this matter was discussed and it was decided to send a communication to the city council and to the board of health of Ashtabula, urging the installation of a water purification plant at the earliest possible time, as a means of preventing epidemic outbreaks of typhoid fever.

REPORT OF AN INVESTIGATION OF AN ALLEGED NUISANCE IN CEDARVILLE TOWNSHIP, GREENE COUNTY.

In March, 1904, a petition was received at the office of the State Board of Health asking for an investigation of an alleged nuisance near the village of Cedarville, caused by the refuse drainage from the strawboard works operated by the Hager Strawboard Paper Company. This petition was presented to the Board at a meeting held April 27th, and a committee was appointed to investigate and report upon the complaint. At the suggestion of the petitioners the investigation was delayed until August as the refuse is then in its most offensive state.

The committee visited Cedarville August 8th and 9th, and made the following report:

Cedarville Township is located in the northeastern part of Greene County and has a population, including the village of Cedarville, of 2,467, according to the census of 1900. The township is drained by Massicks Creek and its two branches which have their confluence at Cedarville.

The complaint is caused by two septic pools, of about 20 acres in area, into which the waste of the strawboard is emptied, and by leakage from the trough through which the waste is conveyed from the works over the creek to the pools. This trough is open on top and leaks to such an extent as to seriously pollute the waters of the creek. This trough crosses above the dam and the pollution of the back water occasions very offensive odors.

It is claimed that the pools are permitted to discharge directly into the creek at times, but this statement is denied by the officials, however. Yet the creek showed evidence of decided pollution from this source.

The pools are a polluted mass of decaying vegetable matter, associated with a very offensive odor.

The place is a veritable hotbed for the breeding of mosquitoes, which were found in enormous quantities. Specimens were obtained and on subsequent examination were found to be of the *Culex pipiens* variety. None of the *Anopheles* genus, the malarial carrying variety, were found. The town was alive with mosquitoes which are unquestionably a great annoyance.

A nuisance exists, consisting of, (a), the odor from the pools and creek, which is carried some considerable distance; and (b), the mosquitoes which develop in the pools.

The following recommendations are offered as to temporary, and permanent means of relief:

1. a. To keep the trough conveying waste over the creek in such a condition that leakage will be prevented.

- b. To look more carefully after the condition of the banks enclosing the pools so as to prevent leakage from this source.

- c. To destroy the larvae and mosquitoes in their breeding seasons, say from June 1st to November 1st, by covering the surface of the pools with crude or refined petroleum, more especially about the edge of the pools as it is here the mosquitoes largely propagate.

2. That the strawboard authorities communicate with the different companies interested in the manufacture of strawboard in an endeavor to secure joint action in an effort to solve, through the aid of expert chemists and engineers, the question of the disposal of this class of waste.

This report was approved by the State Board of Health at its meeting held October 20th, 1904, and a copy of the report was sent to the Hager Strawboard Paper Company, and they replied that they would make a thorough test of the matter and report results.

REPORT ON AN INVESTIGATION OF THE CONDITION OF THE PRESENT PUBLIC WATER SUPPLY OF CONNEAUT.

The health authorities of Conneaut requested the State Board of Health to make an investigation of their public water supply. The bacteriologist and chemist of the Board visited Conneaut on May 4th and 5th. Bacterial tests were made of filtered and unfiltered water at the filter house and from faucets in the city, samples were collected for chemical examination at the laboratory, and information obtained concerning various subjects relating to the water supply. The following report was made:

Conneaut is a growing city that had a population of 7,000 in 1900. It is located on Lake Erie at the mouth of the Conneaut River, empties its sewage into the river and obtains its water supply from the lake a short distance (1,500 feet) west of the mouth of the river. (See Annual Report for 1898, page 551; and Annual Report for 1899, pages 78 and 92.) A plant for the purification of the water was installed in 1899, the process being mechanical filtration using alum as a coagulant. In the period of a little over five years Conneaut has had two epidemics of typhoid fever and other typhoid troubles that have bordered on epidemics. (See Annual Reports of the State Board of Health for 1899 and 1902 inclusive.) Since January 1st, 1904, there have been 32 cases of typhoid fever reported to the health officer of Conneaut, and no estimate was made of the unreported cases.

The filters have been in poor shape at times and have needed repairs. These defects have recently received attention. A new engineer has been placed in charge of the plant, and the superintendent and engineer were much interested in the test, showing every courtesy as well as indicating by their work that they were trying to put the plant in such shape that it would effectively purify the water.

CAPACITY OF THE FILTERS.

The two filters now in use have a guaranteed average daily capacity of one million gallons of water, but the guarantee of bacterial

reduction only applies when the rate of filtering does not exceed 800,000 gallons per day of twenty-four hours. The daily records show that a short time ago the pumps registered some 1,200,000 gallons daily, but there was a large 'slippage'. Since the pumps have been overhauled, the daily pumpage has averaged about one million gallons. Thus it is seen the filters are being worked to their limit, and effective results could not be expected all the time, for when one filter was temporarily laid off for any reason it crowded matters.

One cause for inefficient work has been too little capacity. The contract has been let for the installation of a third filter with a capacity of 500,000 gallons net above wash water, and a guarantee to remove an average of not less than 98 per cent. of the bacteria when the raw water has over 3,000 bacteria per cubic centimeter. The contract also says the filtered water is to meet the requirements of the local and State boards of health. The filter to be installed is a standard gravity filter, made by the Pittsburg Filter Company, and its arrival was daily expected at the time of the visit to Conneaut. With this increased capacity it will be possible to run at a slower rate much of the time and maintain safety in times of emergency.

AMOUNT OF COAGULANT.

The coagulant was measured in pails that had been repeatedly weighed and the books showed that 220 pounds of alum had been used daily since March 8, 1904. This would be equivalent to approximately one and one-half grains of alum to the gallon of water. Prior to March 8 the daily amount of alum used was 200 pounds. There had been thought of reducing the amount of alum soon, but that is not an advisable procedure, for the reason that the water at the harbor is stirred up and there are a number of typhoid cases in the city that are convalescent, and the discharges from these cases will continue for some time to make the sewage of Conneaut a menace to the health of the city unless there is thorough work done by the filters of the water company.

The findings for alkalinity hardly indicate as much coagulant as stated above. The lake water near the intake late in the afternoon of the 4th gave an alkalinity of 92, and at 11 a. m. of the 5th, an alkalinity of 93. Samples of the filtered water taken from the flume in the plant at corresponding hours gave alkalinities of 88 and 91 respectively. A faucet sample in the city gave 89, while one sample from the flume gave 92 parts of alkalinity per million.

EFFICIENCY OF THE FILTRATION.

Date and Hour.	No. of Sample.	Source.	No. of Bacteria per cc.	Percentage removal.
May 4, 3:15 p. m.	3615	Effluent from flume.....	41	96.8
May 4, 4:15 p. m.	3622	Effluent from flume.....	8	99.4
May 4, 5:00 p. m.	3616	Lake at intake.....	1300	....
May 4, 5:15 p. m.	3617	Effluent from flume.....	20	98.5
May 4, 6:30 p. m.	3618	Faucet in city.....	50	96.2
May 5, 8:30 a. m.	3623	Faucet in city.....	7	97.7
May 5, 9:00 a. m.	3624	Effluent from flume.....	10	96.7
May 5, 9:10 a. m.	3625	Effluent from filter No. 1.....	9	97.0
May 5, 9:20 a. m.	3626	Effluent from filter No. 2.....	2	99.3
May 5, 10:45 a. m.	3619	Lake at intake.....	300a	....
May 5, 11:00 a. m.	3620	Effluent from filter No. 1.....	10	96.7
May 5, 11:10 a. m.	3621	Effluent from filter No. 2.....	3	99.0

a. Overspreading growths interfered with the count and the count was low.

The bacterial reduction in these tests was quite satisfactory and especially so when it is remembered that the lake water on the first day had 1,300 bacteria per cc., and on the second day the count for the raw water was only 300 per cc. These low figures in the raw water necessarily make the percentage of removal low. A better way to consider the efficiency of the process in such a case is by the number of bacteria in filtered water. The number of bacteria in the filtered water ranged from 2 to 50 with an average of 16 per cc. in ten samples.

The results show that the filters were doing effective and satisfactory work at the time of the test.

QUALITY OF THE UNFILTERED AND FILTERED WATER.

By looking at the analyses of the two lake samples it is seen that the water at the intake is seriously polluted with sewage as well as being quite muddy, and it is essential for the welfare of the city that the filters be operated in an efficient manner.

The chemical and bacteriological findings in the samples of filtered water show that at the time of sampling intestinal bacteria were not present in the hydrant water, and that the city water was a wholesome, good water, suitable for public and domestic use. Its use would not have caused typhoid.

There is now in course of construction a tunnel 5 feet in diameter that will extend some 150 feet from shore before pipes connect it with the present suction lines to the intake. This tunnel is intended to provide opportunity for the deposition of the sand that was formerly carried into the pumps to their injury, and also to prevent the breaking of the suction lines by the ice close to shore.

CONCLUSIONS.

The investigation indicates that the company has undertaken to remedy defects in the plant and operation, and to deliver a good wholesome water to the consumers.

The present filters are capable of doing effective work, and with the additional filter installed and tested, there should, with proper operation of the plant, be no recurrence of the typhoid troubles at Conneaut due to the public water supply.

The lake water is seriously polluted at times, and with typhoid convalescents in the city and sewage entering the river, the amount of alum ought not to be reduced unless tests are made to show the efficient filtration is still being maintained with the reduction.

The water of the public supply at the time of the investigation was wholly satisfactory in quality."

(For results obtained by examination of the samples collected see laboratory report upon water supplies.)

A copy of this report was sent to the board of health of Conneaut, and to the receiver of the Conneaut Water Company, and they were urged to use their influence with the company to see that the quantity of coagulant used be kept up to the desired amount, and that the installation of the additional filter be hurried as much as possible.

REPORT ON A NUISANCE ARISING FROM THE POLLUTION OF THE MARKET STREET HYDRAULIC AT HAMILTON.

The health officer of Hamilton, Dr. Mark Millikin, requested the assistance of the State Board of Health in the abatement of a nuisance in that city. The matter was referred to the engineer, who visited Hamilton May 9th, inspected the locality and attended a meeting of the health officer, city board of health, city solicitor and several councilmen. The following report was sent to the health officer, with the advice that he refer the same to the city solicitor for counsel as to the procedure to be followed by the board of health in carrying out the recommendations therein:

There is at Hamilton a system of water power canals or "hydraulics," owned by a private corporation, the water being taken from the Miami River several miles above the city and conveyed to a controlling reservoir near the northerly corporation limits. The various

factories located along these canals, by virtue of their location, have perpetual leases on the use of the water and the hydraulic company holds a first mortgage on the properties to insure payment of the water rate. Some of the industries have entirely outgrown the stage at which the water power can be used economically and hence would be glad to have these canals abolished, while some still use the power to advantage. The lower end of one of the hydraulics is located in the center of Market Street, which street extends from Fourth Street easterly to the river, a distance of 1,500 feet, and is but a few hundred feet northerly from, and is parallel to, High Street, the principal street of the city. Market Street crosses several important streets and is in the most thickly settled part of the city. The buildings upon it are largely homes of the poorer class, besides several factories and one or two modern business blocks.

The "hydraulic" is used as a receptacle for all kinds of rubbish, garbage, slops, dead animals, and the wastes from a brewery and a dye house. A large amount of surface water from the adjacent territory reaches it through gutters and sewers, but it is said that no sanitary sewers now discharge into it, although formerly this was the case. The walls of the hydraulic are falling down and the stones fall into the water and serve to obstruct the current and hold back the mass of filth.

When the hydraulic is full, it is said, the conditions, although foul and unsightly, do not cause such overpowering odors and utterly disgraceful sights as they do when the water is low, as was the case at the time of my visit.

Owing to breaks in the reservoir above the city the water is at times (as when inspected) prevented from flowing through the Market Street hydraulic. These breaks occur at irregular periods, just how often could not be ascertained, but there have been two within the last two months. At such times the flow is entirely cut off for perhaps a week, and the hydraulic becomes an open elongated cess-pool covering some 1,500 feet.

All the decaying matter at the bottom is exposed and this is increased through the continued addition of filth of various kinds, thus creating the most vile odors even when the weather is moderate. The odors when the weather is hot are beyond description. This is one of the foulest and most dangerous breeding places for disease that can be found within corporation limits of any city in the State, and surely no such condition can be found within two or three hundred feet of the principal street of any other city.

Steps should be taken at once to have the Market Street hydraulic cleaned out and arched over, or else have it abandoned and filled up, according to the terms that can be made with those having water

privileges. Either of these schemes would accomplish the desired end, provided of course that, in case the hydraulic were arched, no sanitary sewers be allowed to enter it and that the bottom be properly graded and prepared so that there will be no obstruction to the free flow of the water. As Market Street will probably be paved in the near future, such work could be economically performed in connection with the paving.

REPORT UPON THE PREVENTION OF THE POLLUTION OF THE EAST BRANCH OF THE LITTLE MIAMI RIVER AT LYNCHBURG.

The Ohio State Fish and Game Commission was about to bring suit against the Freiburg and Workum Distillery at Lynchburg for polluting the east branch of the Little Miami River. A compromise was effected by which both sides agreed to abide by whatever plan, for preventing such pollution, the State Board of Health might suggest. Accordingly, the engineer of the Board visited Lynchburg, October 21st, 1904, talked with the superintendent of the distillery, the mayor and with citizens, two of whom were active in having the suit brought against the distillery. Although the works were not in operation when visited, from information obtained and from personal observation of the distillery and surroundings, including the river above and below the town, the following report was made:

The distillery is located in the northerly portion of the incorporated village of Lynchburg, Highland County, at the edge of the built-up part of the village. It covers a considerable area and comprises several large buildings located upon land immediately adjacent to the east branch of the Little Miami River, which at this point has a watershed of only forty to fifty square miles and, with the exception of the water which stands in pools, is practically dry during a large portion of the year. The stream at this place forms the west boundary of the corporation as well as the boundary between Highland and Clinton counties.

The process of manufacturing whiskey at the Freiburg and Workum Distillery briefly described is as follows: Corn, or rye, is first cooked, with a small amount of water, forming a mash. This mash is cooled by forcing it through a series of pipes which are in contact with running water. From the "coolers" the mash is conveyed to five fermenters, having a daily capacity of 22,500 gallons, 22,500 gal-

lous, 11,250 gallons, 11,250 gallons and 11,250 gallons, respectively. Here more water, yeast and "thin slop" (as explained below) are added and the mixture allowed to ferment for a certain number of hours after which it is drained to a "receiving well." The contents of the latter are pumped, as needed, into the stills, where the process of distillation takes place; the distillate being whiskey and the residue being called "slop." The latter is a gray colored liquid containing a large amount of suspended matter consisting of the undissolved portions of the corn and rye. This slop is conveyed to a press, provided with a very fine screen (openings are about .5 mm. in diameter) where as much as possible of the suspended matter is removed, dried and sold as "dairy feed."

The effluent from this press is called "thin slop" and amounts to about 66,500 gallons per day, about one-half of which is pumped back to the "fermenters" while the other half must be disposed of somewhere outside of the plant. It is therefore fed to cattle. The fact that this "thin slop" must be disposed of somehow is, as explained below, the primary cause of the pollution of the stream. The only other liquid waste is the water which is used in the coolers and stills and said to come in contact in no other way with any fermentable or offensive material. The amount of this clear water is about 30,000 gallons per day during the operating season.

In order to utilize the waste slop, and also to prevent it from causing a nuisance, it is fed to cattle which are owned by the firm and kept in stables or sheds immediately adjoining the works, during the working season, from about December to July. The effect of the slop upon the cattle is to rapidly fatten them and also to cause their excrement to be of a liquid and very offensive character. This excrement, together with a certain amount of slop which the cattle refuse to eat, is deposited in a large basin, or so-called "pool," about one-half acre in extent and three feet deep, and partially surrounded by the cattle sheds.

This pool has an outlet into the river which is controlled by gates, but the contents of the pool have escaped during the past, and will, under present arrangements, continue to escape in greater or less amounts into the river.

In May, 1888, upon complaint of several Lynchburg citizens, an investigation was made by the secretary of the State Board of Health, and although the arrangement of the sheds and pool was then different from now, it was found that the offal from over seven hundred cattle was either being deposited in the stream or upon ground from which it could be easily washed into the stream, with the effect of badly polluting the latter.

In 1900 an unusually small number of cattle was being kept

so that the contents of the pool consisted largely of slop. This fermented during the warm weather and gave rise to very offensive odors. The local health authorities placed lime and copperas in the pool to eliminate the odor; but a few days later, when the river became in flood, the gates were opened and the entire mass of filth and chemicals emptied into the river and, it is said, formed deposits behind certain dams which killed the fish. The dams have since been purchased by the firm and torn out, so that no more deposits could form there.

When inspected in 1900, by the former engineer of the State Board of Health, the river was much polluted by the distillery, as shown by his report.

As operated during the past season, from December, 1903, to July, 1904, judging from the description of the superintendent, the solid matter, or rather the more solid portion, of the contents of the pool have been hauled away continually and placed upon land bought for that purpose, so that the actual amount in the pool remained almost constant. The gates had been left partially open up to about the 10th of June, so that a continuous stream of liquid matter was being discharged into the river. This liquid matter is said to have been small in amount, but no definite idea of its quantity, nor of its composition, could be obtained, any more than that it was the liquid from the manure, combined with urine, slop and the water from springs located beneath the pool. Since June 10th, on account of complaints then made, the gates have been closed and no waste, except an apparently insignificant amount of leakage passed the gates, has been allowed to enter the river. Liquid, as well as solid matter, has been carted away at large expense during the few weeks previous to July, when the cattle were shipped away. The preceding is representative of the operation of this feature of the works during the past few seasons, as well as of future operation unless conditions are changed.

It is said that there is, as a rule, no profit in keeping the cattle, as the firm is forced to sell them at the end of the season whether the market is favorable or not. But the practice is continued in order to provide means of disposing of the slop without creating a nuisance greater than that caused by the cattle.

CONCLUSIONS.

The prevention of pollution of the east branch of the Little Miami River by wastes from the Freiberg and Workum Distillery is a problem which can be satisfactorily and economically solved only by thorough investigation when the plant is in full operation. Such investigation should include accurate measurements of the quantity of slop which must be disposed of each day, and a measurement of the

daily quantity of liquid waste which must be allowed to escape through the gates of the "pool;" consistent with hauling away the usual quantities of manure. Chemical analyses of the wastes should also be made and experimental devices, such as tanks and filters, be operated before making any radical change in the present arrangements and methods.

This problem is one which has no precedent, of which I am aware, to facilitate its solution; though some of the principles involved have been studied in connection with the disposal of other wastes. As the plant has not been operated since July and will not be started again until December, it is impossible at this time to obtain the data and make the tests mentioned above. Therefore, no definite plan can now be recommended.

As possible solutions of the problem the following scheme should be investigated.

First, the installation of a large water-tight basin at the outlet from the pool, in which to collect the liquid wastes and force them (when the basin is filled), by means of a small centrifugal pump, to land, or to prepare filter beds, settling tanks or other basins, so located that no nuisance or danger to any water supply will be created, continuing, as at present, to haul away all wastes which cannot be pumped.

Second, to discontinue the keeping of cattle at the plant and pump the slop to suitably located disposal grounds where it would be treated by methods to be determined later, by chemical examination and experimental tests. The desirability of filtering this slop either with or without preliminary treatment in septic or fermentation tanks should be studied.

A copy of this report was furnished to the Attorney General and to the Freiburg and Workum Distillery.

REPORT UPON AN INVESTIGATION OF THE SANITARY CONDITION OF THE OHIO PENITENTIARY.

Following is a report of an investigation of the sanitary conditions existing at the Ohio Penitentiary. The investigation was ordered by the State Board of Health on account of various adverse reports having reached the Board, and Dr. Frank Warner, a member of the Board, and the secretary were appointed to conduct it. The work was carried out by Professor Elmer G. Horton and his assistants in the laboratory, and the late Mr. B. H. Flynn, then engineer to the Board.

The thanks of the Board are due to ex-wardens Hershey and Darby, Deputy Warden Wood, Drs. Teachnor and Thomas and various guards and others, for assistance and facilities afforded in prosecuting the work.

A careful perusal of the report will show many serious defects in the sanitary arrangements and condition of our State prison. Many of these are irremovable; some might be materially changed for the better. The location is bad, being upon low, wet ground. The buildings are mostly old and badly planned, from a sanitary standpoint. The old cell blocks are excessively cramped, dark and ill ventilated. Much of the plumbing is old, in bad repair, and can hardly be kept in a cleanly condition.

It is questionable whether it would be wise or economical to attempt to place the prison in a proper sanitary condition. Certainly, aside from financial considerations, there is good reason to advise the abandonment of the entire plant and the construction of a new prison at some other site. Having regard only for the health of the inmates, the Board would recommend that this be done. And in considering this project it should be held in mind that the prison revenues depend very largely upon the health of the prisoners. In the industrial world it has been found profitable to consider the sanitary conditions under which men work. No one would dispute this for beasts of burden, and it should hold true for men in prison required to perform daily labor.

Certain improvements in sanitary conditions could be made without delay. Foul water closets may be kept clean, though radical changes in plumbing will be required in some places to insure perfect conditions.

Light is essential to health, and weekly cleaning of windows would improve present conditions. Electric lighting, substituted for gas, would render the atmosphere less impure and afford better light for work in dark places.

In some of the shops, notably in the State shop and tobacco shops, there is great overcrowding. This latter employment, at best, is detrimental to health, and must be greatly so under the conditions existing at the Penitentiary. Other shops are constantly filled with dust, mineral dust for most of them, which is most injurious to the lungs, and notoriously provocative of tuberculosis. Dust removing machinery would greatly reduce this danger. Devices for protection from accidents from machinery are mostly absent. These should be required.

As will be seen from mortality tables appended, a large number of the inmates die of consumption. During the eleven years ending December 31st, 1904, there were 339 deaths among prisoners, omitting deaths from execution and suicide. The average prison population

during this time was 1,970. This gives a death rate of 17.21 per 1,000 per annum, which, considering age periods, is quite high. One hundred and twenty-five of these deaths were from consumption; that is, 36.9 per cent. of the deaths from all causes were from tuberculosis. For the registration area of the United States for the last census year a little over 10 per cent. of the deaths from all causes were from consumption. The difference in age periods between prisoners (mostly under twenty years) and the general population should be borne in mind. Many prisoners have tuberculosis on leaving the prison, and a not inconsiderable number who were dying of the disease have been pardoned on that account. On the other hand quite a large number have tuberculosis at the time of entering the prison. Thus of the 125 who died in prison of tuberculosis 42 died within less than one year and 37 within less than two years after entering.

The conditions at the Penitentiary are most favorable for the development and spread of tuberculosis. The poor ventilation, the overcrowding, the absence of light, and the dust producing occupations, all favor it.

It will be noted from the table that in most cases the consumptives were admitted to the hospital but a short time—some only a few days, before death. This meant many opportunities for infection. No special precautions are taken to guard against this danger. There is no care of sputum outside of the hospital and no disinfection of cells, bedding, etc., used by consumptive prisoners.

Tuberculosis was completely wiped out of the Minnesota State Prison by a system of isolation, special diet, etc. It seems highly probable that this disease could be at least much reduced in the Ohio institution.

REPORT OF THE CHEMIST AND BACTERIOLOGIST.

The laboratory force began an investigation of the sanitary condition of the Ohio Penitentiary in April, 1903. The work has extended over a period of twelve months.

The investigation naturally included a consideration of those conditions about the cells, corridors, shops, and various buildings where the convicts pass their time, that would prove detrimental to the welfare of the prisoners or those associated with them. These conditions are taken up in detail in the body of the report.

SITE.

The Ohio Penitentiary is located a little west and north of the heart of the city of Columbus, and is close to the Scioto River. The main entrance is on West Spring Street. The site would appear to

have been chosen for convenience or commercial reasons, and not from a sanitary view. The site was originally swampy and has been filled so that the Penitentiary is situated on made ground in a low area. The soil water level is reached by digging downward from three to ten feet, according to the surface elevation. In the growth of the institution it has extended over a section formerly used for burying the dead.

WATER SUPPLY AND SEWERAGE.

The water supply was at one time from artesian wells, but proving unsatisfactory, the city water has since been used. This water we know to be polluted more or less of the time. The city water is used for laundry, baths, hospital, kitchen, and was used for drinking and dining room purposes until the typhoid epidemic early in 1904. Since that time the water for drinking purposes has been boiled in a large boiler and then hauled to the various shops where it is also used for the washing of hands and faces.

For other uses in the shops, and for all mechanical purposes in the institution (such as scrubbing, cleaning of floors, etc.) water is pumped directly from the Scioto River, at the Penitentiary. The Scioto here is more polluted than at points above.

The sewerage will be touched upon in the succeeding pages but may be summed up briefly. The water closets are old, worn out, and of the out-of-date patterns so hard to keep clean. The plumbing is bad in many cases. The pail system is in use in the cells for the removal of the urine and fecal matter passed during the evening or early morning. On the way to breakfast, each prisoner empties his pail in the first hopper at the bath house, holds it for an instant under a flowing stream over a second hopper, gives it a rinse, and empties it in a third hopper. The pails are then piled up to be returned at evening to the cells, while the prisoner passes to the bath house to wash his hands and then to the breakfast table. With such a cleansing of the pails and subsequent handling by another prisoner there is some possibility of the transmission of typhoid fever from convalescents, for many of the men are anything but cleanly in their habits.

TRANSMISSION OF INFECTIOUS DISEASE BY DUST.

Tests were made of dust and surface wipings from the tuberculosis ward in the hospital and from one of the cells in Block E, as follows:

Tuberculosis Ward.

On May 12th, 1903, ten sterile swabs were moistened in sterile water and then rubbed over the areas named below :

1. Faucet of water filter.
2. Cloth cover of water stand, where hand would rest.
3. Frame of "Alexander's" bed.
4. Handle of "Alexander's" hair brush.
5. "Smith's" sugar box.
6. "Smith's" night gown.
7. "Smith's" pillow.
8. Door knob of bath room.
9. Handle of "McKaa's" cane.
10. Seat of "McKaa's" stool.

These swabs were shaken in sterile water, the water separated in two portions.

Guinea pig A was inoculated subcutaneously with 1 cc. of the first portion at 3:30 p. m., May 12th, 1903. Weight 295 grams. This pig continued to thrive and was well six months afterward with no evidences of tuberculosis.

The second portion of the inoculated water was centrifugalized and .25 cc. inoculated subcutaneously into guinea pig B. Weight 264 grams. This pig also continued to grow and at the end of six months was in good health, with no signs of tuberculosis.

Cell 4. First Range, Block E.

On May 25th, 1903, nine swabs were similarly rubbed on surfaces as follows :

1. Floor.
2. Floor near spittoon.
3. Wall near floor.
4. Top of stool.
5. Gas jet stop-cock.
6. Bedding.
7. Pillow.
8. Outside of drinking pail.
9. Pillow.

Two guinea pigs were inoculated with washings from these swabs on the afternoon of May 25th.

Guinea pig C, weight 327 grams. Inoculated subcutaneously with .9 cc. Died August 16th with slight loss of weight. Careful inspection, cultures, and microscopical examinations failed to reveal any evidence of tuberculosis.

Guinea pig D. Weight 422 grams. Inoculated with 1 cc. subcutaneously. Died October 5th, with much emaciation. Careful bacteriological and pathological examination failed to reveal any evidence of tuberculosis. The failure to thus obtain experimental tuberculosis in any of the four pigs is not to be construed as meaning there was no danger from these locations because they were kept clean. It is true precautions had been taken to keep things about the wards and cells clean, but one must also bear in mind the many negative results in animal inoculation in the investigations by Hill* of rooms where tuberculosis patients had been confined.

SICK CALL.

It is fitting that attention be early called to the wisdom, from a sanitary view, of the daily sick call as carried out at this institution. In brief it consists of an examination each morning, by one of the Penitentiary physicians, of all inmates who are ailing. This procedure affords opportunity for the early diagnosis of infectious or contagious diseases and thus their spread may be prevented. Although some prisoners abuse the privilege, yet the sick call deserves hearty commendation.

SHOPS AND BUILDINGS.

In discussing the conditions existing in the buildings where the prisoners spend the daylight hours, little attention has been paid to the question of cubic space and ventilation except in special cases, for it was found the cubic space per individual generally amounted to from 1,000 to 6,000 cubic feet or higher. With such figures for cubic space, the necessary number of changes of air per hour becomes so low—even fractional, that the change is readily accomplished. This would especially hold true in shops where doors and windows are open much of the time, thus increasing the opportunity for a natural ventilation.

With the question of ventilation not so important in the shops, attention was given more especially to plumbing, dust, light, safety appliances, etc. Safety appliances were generally absent, and the plumbing throughout the institution with rare exceptions can only be called bad. High ideals concerning light and dust were not entertained for an institution of this kind, and the meaning of the report is better understood if that point is remembered.

In order not to burden the report with unnecessary details, some buildings and rooms have been omitted as they needed no special mention.

a. American Public Health Association XXVIII, 209.

THE E. B. LANMAN STAMPING COMPANY.

"Stamp 1," as it is called, is the main room of the first floor and is 136 feet long by 47 feet wide by 11 feet, 7 inches high from floor to bottom of joist. This room had 858 square feet of window space, but some of the window space was so blocked by foreign objects as to reduce the figure to 730 square feet. Therefore the window space area was 11 per cent. of the floor space, or 13 per cent. when outside doors were opened, as is the case much of the year. The figure of 11 per cent. does not give a correct idea of the poor light in this shop, for in addition to the windows being so dirty as to become somewhat opaque, there was so much machinery, shafting, wheels and belting as to seriously interrupt the light. Although the day on which the inspection was made was a bright sunny day, yet 36 electric lights were burning in "Stamp 1." The room is one of the dark ones of the institution.

With from thirty to forty men working in this large room, and with the doors and windows open much of the time, it is seen that the question of cubic space and delivery of requisite air per person need no comment.

The two closets were in a dirty condition. Each was provided with a straight hopper and running water.

Rattling Room.

In the rattling room just to the north of "Stamp 1," the light was but little better. The room is 41 by 33 feet by 20 feet high and the available window space is 9 per cent. of the floor space and may be made 12 per cent. by opening doors. A cupola helps in lighting and in ventilation. Six machines and five men occupy this room. At times metallic dust is present in considerable quantity in this room and is of course seriously detrimental.

"The Attic."

Just to the west of "Stamp 1" is a small building known as the Attic, although only one story high. The light is very poor, for the five east windows are all blocked or look out against "Stamp 1," only three feet away, and of the eight windows on the west side of the attic six are blocked for one-half their length. A cupola runs nearly the length of the room and helps the ventilation and lighting.

"Stamp 2."

This shop occupies the second floor of the main building and is the same size as "Stamp 1." On this floor some thirty men are em-

ployed. These windows were also very dirty and the room was very dark, although not quite so bad as the one on the floor below it. Nearly every machine had an electric light (27 in all) suspended in front of it, but the globes were too dirty for good lighting.

One of the closets on this floor was broken, but the other closet was in running order and the surroundings were not very bad.

Galvanizing Room.

This room adjoins "Stamp 2" on the rear and is a bad place. The heat varies, but is intense at times, fumes from the process and steam fill the air and one can hardly see or breathe part of the time. The cubic space is very great as it is a good sized room and only one man working there, but the ventilation is defective for the kind of place, and the light is poor. The windows are dirty and only six are serviceable. There is no hood over this process to carry off the fumes and only one little cupola, about 3 feet square, located in the high roof nearly over the place where the workman stands.

"Stamp 3."

"Stamp 3" is situated on the floor above "Stamp 2," but the ceiling is higher, being 14 feet from the floor. This room is dark although not quite as bad as the second floor, for more of the windows had one sash raised or lowered and thus they admitted daylight without hindrance by a dirty glass. The windows at the time of inspection were even dirtier than in "Stamp 2." There is no dust here, but it is a greasy place. Half a dozen electric lights were in use.

One of the closets was usable, the other not clean.

"Stamp 3" employs twelve men, usually.

THE NATIONAL BROOM COMPANY. "GRAHAM'S."

First Floor.

Twenty-two men are employed on the first floor. The room is 148 feet by 48 feet by 12 1-2 feet, with 900 square feet of window space, which is 12 per cent. of the floor space, and this figure is increased when the many doors are opened. Dust removers are provided for part of the machines. There is, however, some dust in winter, but it is not so bad when the windows and doors can be opened. The light is rather poor and especially so on a dark day.

The stool in the prisoners' closet was in poor condition, the seat was broken and the floor wet and unclean.

Second Floor.

The size of the second is the same as the first floor; the light and ventilation much the same with some little improvement. The guard's closet was in fair shape, but in the prisoners' closet the seat of the stool was wet, soiled and broken, and the floor was wet.

This shop is considered by the men to be a fairly good place in which to work. Fifty men are here employed.

Third Floor.

This floor is used as a shipping room and as but five men are employed and the room has a height of 14 feet, the cubic space per individual is nearly 20,000 cubic feet. The air is good and the light fair. One of the closets is but little used, except for waste water, the other smelled bad.

COLUMBUS HOLLOWWARE COMPANY.

Foundries.

In the north end thirty-two men are employed. The window space is 9 per cent. of the floor space and the windows are placed near the floor, therefore the light is not strong, though not interfered with by machinery, as in other shops. This room is 122 feet by 68 feet, and the height is 24 feet at the walls and 35 feet at the edge of the ventilating cupola. The cupola is 15 feet wide and extends nearly the length of the room. The guard's closet was dark, but fairly well cared for; the prisoners' closet was very dark and filthy.

Middle Room.

Thirty men are employed in the middle room, which is 91 feet by 68 feet, with the window space 10 per cent. of the floor space, but one-sixth of the window space is blocked. The surroundings of closets are kept clean because the guard's stand is only eight feet away.

The south end is 103 feet by 68 feet, and 17 men are employed. The window space is 9 1-2 per cent. of the floor space and the light is a little better than in the preceding foundries. Both closets were in poor condition.

As foundries they are not bad places, although improvement could be made in some particulars.

Inspecting Room.

There are six men at work in the inspecting room, which is 78 feet by 25 feet by 11 feet high at the wall, thus giving plenty of space,

but the light is poor. There are eight outside windows, 3 feet by 6 feet, but they were so dirty at the time that one could not see out. Doors and other windows open into other rooms, chiefly into the dusty tumbling room. Most of the daylight enters through an open outside door 7 feet by 6 feet.

Tumbling Room.

There are twelve men at work in this room, which is 51 feet by 47 feet by 23 feet at the wall. All openings are into other rooms except the cupola. Naturally but little light reaches this room by coming through those adjoining. It is a dark room, but is helped out by the light which enters from the cupola 51 feet by 17 feet. The machinery consists of sixteen tumblers, which make such a large amount of dust at times that one can barely see for a few feet. No dust appliances are in use about the machines. The accumulated dust about the tumblers is reported to be removed daily, but more or less of it is loaded and reloaded into the tumblers with successive charges of the machines, and thus repeatedly thrown into the atmosphere. On May 29, 1903, a number of determinations were made of the number of dust particles in the air of this room. The average gave 110,000 particles present in 1 cubic centimeter of air. The doors and windows were open at the time.

Grinding Room.

The grinding room is very dark and dusty, as all openings are into other rooms except the cupola. Determinations of dust on May 15, 1903, a bright, breezy, sunny day with the windows and doors open, gave an average of 89,200 dust particles per cubic centimeter. On May 29, 1903, a rather still day, the average was 111,200 particles of dust per cubic centimeter of air.

There was a dark, dirty, wet closet, emitting a decided odor.

Paint Shop.

There are seven men employed in the paint shop. The light obtained from five windows and two cupolas makes this a fair room for work. The air was stuffy from the paints and the windows were closed. The closet was dark, wet, dirty, and foul smelling.

Enameling Room.

There are nine men employed in the enameling room. The light in this room is satisfactory. There is more or less dust in the opera-

tion and a great deal of heat. The windows are kept closed, the reason given being that a little of the material is wasted in dusting if the wind blows in. Cupolas exist, but the heat, dust and ventilation conditions would be greatly improved by opening the windows.

Machine Shop.

Four men are at work in the machine shop, which is 59 feet by 38 feet by 12.5 feet. The window space is only 8 per cent. of the floor space, or 10 per cent. when increased by leaving the outside doors open. This is a very dark place even on a bright day and is held by the men to be a bad place to work. The windows are very dirty and belts and machinery obstruct the light. The ventilation is poor and electric fans have been placed overhead. The roof leaks in various places when it rains, and during a hard rain water runs in from the street as the floor and door are lower than the street. The closet was light and fairly well kept.

P. HAYDEN SADDLERY HARDWARE COMPANY.

Shipping Room.

There are six men employed in the shipping room, which is 42 feet by 47 1-3 feet by 12.5 feet. The window space, 253 square feet, of which 120 were blocked, is between one-fourteenth and one-fifteenth of the floor space. The closet was very dark, the stool was out of order and the floor littered.

Plating Room.

Eleven men work in the plating room, which is 74 feet by 47 1-3 feet by 12.5 feet. Part of the window space is blocked, leaving 335 square feet, but the windows are dirty and the room is rather dark, as the window space is less than 10 per cent. of the floor space. It is said that the fumes are bad in the winter time when the building is closed, although hoods are over the plating pots. The closet was dark and also wet from a leaking pipe overhead. The men covered the seat with a piece of cardboard.

Stamping Room.

Five men are employed in the stamping room, which is 27 feet by 68 feet, with 8 per cent. of window space, and is very dark. The closet floor was dry, but the stool was nearly worn out.

Hayden's Buckle Shop.

The buckle shop is a room 191 feet by 47 feet by 12 2-3 feet, with twenty-three men in it. The window space is 12 per cent. of the floor space. The light in this room is pretty good and there is no dust. The floors of the closets were clean. This is not an objectionable place to work.

One corner of the above room is set off for a Japan shop. This is not as light as the main room. Odors of turpentine and benzine were slightly in evidence.

Foundry.

The foundry is 180 feet by 73 feet; quite satisfactory for a foundry. The light is fairly good and it as well as the heat is improved by the cupola. The closet seats were wet.

Blacksmith Shop.

There are forty-five men in the blacksmith shop, which is 199 feet by 67 feet by 14.5 feet at the eaves. A large cupola helps the light, heat and ventilation. The light is good, the heat not bad, at inspection, but reported to be sometimes in summer. There are 26 furnaces, placed about 10 feet apart. On an average 22 of these are in use.

The guard's closet was in fair shape, but the prisoners' had a bad odor and was not clean.

Annealing Room.

There are eleven men employed in the annealing room, which is 72 feet by 50 feet by 14 feet at the eaves and has 288 square feet of window space, making it 8 per cent. of the floor space, but as part of the last 25 feet in one end of the building is occupied by the furnaces, the above percentage approximates 12 for actual purposes. The windows were so very dirty and all of them partially (about one-half) blocked with opaque objects, and part of them opening under a shed, that the light was very poor. On dark days torches are used regularly. When "drawing the furnaces" the heat is intense and the narrow cupola and blocked windows do not offer much relief. The prisoners' closet had a badly littered floor and a strong odor, although a breeze was passing through at the time of inspection.

Tumbling Room.

There are two men employed in this room, which contains 14 tumblers, only four of which were in operation at the time of inspection,

but they made an unbearable amount of noise. The size of the room is 55 feet by 17 feet by 14 feet. The window space is 108 square feet, or 11 per cent. of the floor space, but the glass was so dirty that the light could scarcely get through. One door opens into the annealing room and the other outside. Three little cupolas, each 3 feet square are at the roof. The room is dark, but not much light is needed. The excessive dust is the worst feature of this room. One machine when first started fills the room with dust so that one cannot see across the room, although there was some draft at the time of inspection. With more of the machines going, the doors and windows closed, the air cannot help but be loaded with metallic dust. There are no dust removers, and what is more the morning dust is actually shoveled into the tumblers time and again with the articles to be ground. These articles are dumped in front of the tumblers right into a pile of the heavy dust that has fallen from the machine. In scooping up the articles the shovel carries large quantities of dust into the tumblers to be again thrown out when the machine starts. It is reported that the dust is removed daily from around the machinery.

Storage Room.

The storage room is a satisfactory place to work, but it is lonesome, as only two men are employed there.

COLUMBUS BOLT WORKS.

Bolt No. 1.

Fifty-five men are employed here. Bolt No. 1 is a ground floor room, 192 feet by 48 feet, with window space a little more than one-eighth of the floor space. At the time of inspection the majority of the forty-four dirty windows had one or both of the sashes out. The light would thus be fair if it were not for obstruction by the machinery. As it is the light is very bad. There are 24 furnaces in the room, and on a warm day it becomes very hot between the furnaces. A cupola extends nearly the full length of each half of the room and with the sides open, good relief work was being done.

The closets were in bad condition, the door being off of one. There was a hole in the roof of one and dirt and grease dropping through. The odor was bad.

Bolt No. 2.

This shop occupies the ground floor of another building, is 197 feet by 47 feet by 12.5 feet, and employs thirty-five men. Nearly every machine has a dingy electric light burning, although the sun was shin-

ing brightly outside. The room is full of machinery and the light is even worse than in Bolt No. 1, although the proportion of window space is slightly greater.

The closets were in bad shape. One had no ventilation and the odor was foul, the floors were dirty and, in one, broken through.

Bolt No. 3.

There are sixty-five men employed in Bolt No. 3, which is on the second floor, above Bolt No. 2. The window space is slightly increased, still the light is poor as the room is full of machinery, belting, etc. Artificial light is used. With this increased number of men the cubic space is nearly 1,800 per individual. Two determinations on the afternoon of April 27, 1903, in different parts of the room, showed the excess of carbon dioxide over the outside air to be 2.68 and 2.78 parts per 10,000.

Bolt No. 4.

In Bolt No. 4 seventy men are employed. The room is on the third floor of the same building. The walls of the building are crooked and give the appearance of being about ready to fall. The light here would have been better had not boxes, piled between the windows, prevented the proper diffusion of light. Electric lights were used at some of the machines. One of the closets was wet and sloppy, while the other was in fair condition.

Bolt No. 5.

Forty men are employed here. The room is 134 feet by 48 feet and is on the ground floor. The window space is nearly one-eighth of the floor space, but the windows were not clean. The light is better than in some of the other bolt shops. The room has 27 furnaces, also 4 "pickling vats" for treating the wire. The men complain of the steam and fumes when the vats are in operation. The room has three cupolas, 6 feet by 24 feet. There are two closets which were dark, wet and foul smelling. Each had a ventilator 10 inches by 12 inches.

Bolt No. 6.

There are thirty men employed in this shop, which is also dark, with dirty windows poorly distributed on two sides. Most of the men employed here are not convicts.

Shipping Room.

The shipping room is over Bolt No. 6 and is also dark, but only six men are employed here.

BROWN, HINMAN AND HUNTINGTON COMPANY.

Rake Shop.

This shop is 122 feet by 58 feet by 13 feet. The number of men employed varies from three to thirty, averaging fifteen. The window space is 600 square feet, but a part of this is blocked. The light is fairly good because the windows are cleaner than generally found. There is but little dust and the place is not counted objectionable by the men. The guard's closet was fairly clean, but with a strong odor. The prisoners' was not clean and had a foul odor.

Snath Shop.

The second floor is occupied by the snath shop, comprising a polishing and a finishing room. There are fifteen men employed here. The light is fair. There was no dust in the finishing room, but some in the polishing room, where there are appliances for removing dust. These appliances, in a large measure, made good their use. One closet had a bad odor and the floor was not clean.

Hoe Shop.

The hoe shop is 161 feet by 58 feet by 18 feet at the walls. One cupola, 6 feet wide, extends nearly the length of the building. In addition there are five smaller cupolas half way up the roof on each side. The available outside window space is only 6 per cent. of the floor space and though helped out by the cupolas the light is very poor. There are thirty-eight men employed in this shop.

The closets in the hoe shop were also used by the men from the machine shop. They were pretty well cared for, but poor in quality.

Machine Shop.

There are twelve men employed in the machine shop, which is a shed at the side of the preceding. It is 120 feet by 29 feet by 12.5 feet at the outer wall. It has eight furnaces and is a dark room as the outdoor window space is only 8 per cent. of the floor space, and the openings to the hoe shop afford very little light.

Hoe Polishing Shop.

Thirty-three men are employed here. The room is on the ground floor and is 104 feet by 40.5 feet by 13 feet, with 405 square feet of window space (over 9 per cent.), but the windows were not clean nor free from other objects. Objects in the room and around the machines prevented free passage of light, thus making the light poor.

The metallic dust is bad at times, especially when the outside openings are closed. There are no dust removers. The average of a number of determinations on the afternoon of May 15th, 1903, a bright, breezy day, showed 71,600 dust particles per cubic centimeter of air with the doors and some of the windows open.

Hoe Finishing Shop.

This is the main room, 73 feet by 40.5 feet by 13 feet. Twelve to twenty men, with an average of sixteen, are employed here. The light was fairly good; dust appliances were in use and removed most of the dust, and the closets were pretty well kept.

Paint Shop.

A paint shop is attached to the hoe finishing shop and measures 32 feet by 40.5 feet by 13 feet. Nine men work in this place. Nearly one-half of the space of the seven windows was blocked, but when the outside doors were opened the light was fair.

Store Room.

The store room is considered a satisfactory place to work.

PIONEER STOVE WORKS.

Foundries. South Room.

Twelve men work in this room which is 78 feet by 45 feet by 14 feet. As foundries these are not bad, although they have minor defects. The light could be called fair and the cubic space satisfactory. The closets were in poor condition.

Middle Room.

Forty-five men are employed in this room, which is 140 feet by 78 feet. Light is supplied by two rows of windows. There was a sink hole near where the men dipped water, but it has been partially remedied. There is dust after shaking the facings; determinations on the morning of May 29th, 1903, showed 28,000 particles of dust per cubic centimeter of air. The tests were made close to and just after the shaking. The closets were very poor affairs and poorly kept, and it is said that the men do not always make use of them.

Tumbling Room.

There are two men employed in this room, which is 40 feet by 23 feet by 8.5 feet at the outer wall. The doors were open, the windows

out, two holes were in the roof and also a couple of cupolas, therefore some light could enter and dust get out, but it is not a light place. It has much dust and is an unsanitary place to work. On the morning of May 29th, 1903, with half of the machines in operation, the average number of dust particles per cubic centimeter was 82,500.

GEORGE E. WING CIGAR SHOP.

Stripping Room.

This room is sometimes called "Cigar 1," and is on the ground floor. It is 36 feet by 27 feet by 21 feet and, as fifty men are employed there, it is seen that there is great crowding. The floor space per individual is only 19.5 square feet and the cubic space a trifle over 400 cubic feet, while the window space is nearly one-fifth of the floor space; yet the windows were dirty and arranged on an end and side of the room so that a part of the room is dark. The gas is poor and but little help can be obtained from it; but when in use it adds to the carbon dioxide in the air. The gas ought to be replaced by electricity. Two determinations were made for CO_2 in different portions of the stripping room on the afternoon of April 27, 1903, when the windows and doors were not all closed. The excess of CO_2 over the outside air was found to be 4.59 and 6.17 parts per 10,000 in these samples. Under less favorable opportunity for ventilation it must surely go considerably higher, and especially so when the gas is also burning. This is a very unhealthy place to work and with the air and position of the men, is bad for the lungs.

The closet was comparatively clean, and they said it was no trouble to keep it clean, "for the men who soiled the seat got the paddle."

[Later.] The number of men who work in "Cigar 1," it is said, has been reduced to forty.

Casing Room.

The casing room adjoins "Cigar 1" and is a poorly ventilated, dark room, but only three men are employed here.

Inner Casing Room.

But one man is employed in this room, which is 30 feet by 14.5 feet by 8.5 feet. The air is foul, as there is no ventilation or natural light the door being the only opening.

Drying Room.

In the drying room but one man is employed. He has plenty of room, for the space is large, and he also has plenty of odor from the drying tobacco.

Packing Room.

There are thirteen men employed in the packing room, which is on the second floor. The room is 43 feet by 39 1-3 feet by 12.5 feet, but in one corner of the room a space, 14 feet by 14.5 feet, is partitioned off, leaving a floor space of 1,489 square feet. The window space is 240 square feet, distributed on two adjacent sides of the room. The light is passable, except on dark days when the men stop packing. This room is also known as "Cigar 2." The closets send out bad odors.

"Cigar 3."

This room is on the third floor and is 98 feet by 40 feet by 14 feet, plus a wing 40 feet by 14.5 and of the same height. The window space is about one-fifth of the floor space but the light does not reach as well into the room as it would if the windows were placed nearer the ceiling. In the middle of the room the light is not very good. This room is one of the poorer ones as regards cubic space and floor space, the figures being 571 cubic feet and 40 square feet, respectively, per individual. Some complaint is made of the air in the winter time. On the afternoon of April 27th, 1903, with the doors and windows open, the excess of CO_2 in this room over the outdoor air was 4.05 parts per 10,000. One hundred and fourteen men were in the room at the time.

The closets were fairly clean, and but little odor was noticeable.

STATE CARPENTER SHOP.

This room is 71 feet by 38.5 feet by 12.5 feet and but four men are employed here. The windows are arranged on one side and one end, making a portion of the room rather dark, but the men work most of the time on the light sides of the room. The light is good in the machine shop adjoining. At the time of inspection no dust making machines were in operation in the State carpenter shop, although such machines are present. It is said when these are running and the doors and windows are closed that the air gets pretty dusty.

STATE SHOP.

This sewing shop is on the second floor and just above the dining room. It is 175 feet by 47.5 feet by 13.25 feet, with 420 square feet of window space unevenly divided. The window space is 5 per cent. of the floor space and the light is miserable, especially so for sewing purposes. The gas is poor, but is used most of the time. Fifty men are employed in the State shop. Examinations were made of the CO_2

content of the air of the east and west ends of this shop on the afternoon of April 27, 1903. Most of the men are in the east end. The excess of CO_2 in the east end over the outdoor air was 6.84 parts per 10,000, and the excess in the west end was 4.49 parts per 10,000. The door and some of the windows were open, as it was a warm day with some breeze blowing. This shop is a bad place from a sanitary view. The guard's closet was fairly well kept. The prisoners' closets were not so well cared for. They were rather wet and sloppy, and two of them were dark.

IDLE HOUSE.

This room is on the second floor of one of the buildings near the hospital. It is 75 feet by 52 feet by 12 feet, with 475 square feet of window space. It is not an objectionable place in most respects unless one's ideals are raised from the surroundings. On April 27th, 1903, the excess of CO_2 over outdoor air was 3.97 parts per 10,000 in the north end, and 2.50 in the south end where windows were open. One hundred men were in at the time of the test.

THE INSANE ASYLUM.

This room is 52.5 feet by 32 feet by 19 1-3 feet, with sixteen windows, each 3 feet by 10 feet, thus making the window space more than one-fourth of the floor space. The windows are also placed well up in the walls. The twenty-four cells are arranged in a double block in the center of the room, the north cells opening to the north and the south cells to the south. On each half of the block there is an upper and a lower tier of cells, each tier containing six cells. Each cell measures 8 feet by 6 feet by 7 feet. The outer end of each cell has an open grating which is curtained in front of the bed. The upper cells are grated on top, thus giving increased ventilation.

The stone floor of the asylum rests on the ground and as the ground is low here, the floor is damp unless a fire is kept burning. The closets, as might be expected, are dirty. The sewer is exposed just outside of the closets. The yard is of good size, but in a low corner.

THE BATH HOUSE.

This building is 50 feet in diameter, 16 feet high at the walls, with a 60° roof. It has accommodations for eighteen or twenty plunge baths and one hundred shower baths, and is provided with hot and cold water. It answers its purpose.

DINING ROOM AND KITCHEN.

The dining room is on the ground floor, in the shape of an L. The portion extending east and west is 175 feet by 48 feet, while the south wing adds a space 77 feet by 41 feet. The floor is uneven and the height varies from 11 2-3 feet to 13 feet. There are no windows on the south; eight windows on the west side opening out doors; six windows on the north side opening into a covered driveway, and six more opening outdoors. Of the three windows on the eastside of the south wing, two open into the dish room, and three windows and a transom on the extreme east side open outdoors, with the side of the plumbing shop about 12 feet distant. The windows are 5.5 feet by 3 feet and it is seen that they are wholly inadequate to furnish natural light for such a room. It is necessary to light the dining room artificially.

"Jerico," a secondary dining room, is located between the main dining room and the hospital, and needs no special comment.

The kitchen is dark but shows evidence of being kept as well as conditions will permit. The butter room was in good condition. The refrigerator for the meat also gave evidence of care bestowed on it, but its odor at the time of inspection was a little off.

The dining room closets, located near the insane asylum, were foul and filthy, and the urinal the same. Persons connected with the dining room and kitchen work should not be allowed to use such closets.

HOSPITAL.

This is one of the modern buildings, having been erected in 1895. It is arranged in the form of a right angle cross, thus affording ample opportunity for good lighting.

While the hospital is not perfect in its arrangement and details, it is to be looked upon, with exceptions to be noted, as in general quite satisfactory for the place.

The wards and halls are kept clean under the supervision of those in charge. The leading defects are the system of ventilation, the plumbing, and the condition of the basement. The system of heating and ventilation installed at the time of erection was intended to provide fresh air that had been heated in the basement prior to its delivery to the wards. It is said that the system never worked and the next year heating by hot water was adopted, and radiators placed in the wards and halls. The ventilation part of the system has been neglected. The inlet boxes in the basement have become runways for rats and receptacles for trash. At one place a water closet has been in-

stalled in a portion of the cold air inlet, and the condition of this closet at the time of inspection was not a sanitary one. It gave forth a decided smell, and one is not surprised that odors of rats and *other things* had been noticed in the wards. The openings for admittance of fresh air from the outside were closed and the air was drawn from the basement, which, as noted above, is not in a suitable condition for such use. The basement needs a thorough cleaning and changes should be made in the operation of the ventilation part of the system if it is to be used at all.

Solitary Confinement.

This department is located in the basement of the hospital. The room itself is quite light. The twelve cells are arranged in a double row in the center. Each cell is 7 feet by 4 feet by 7 feet. Ten of the cells have grated doors 1 7-8 feet by 6 feet, and each has a grated window 1 5-6 feet by 2 1-2 feet. Two of the cells have a closed door and no window, making them dark and with no opportunity for ventilation.

The Dungeon.

This is an adjoining room, the cage itself being 8 feet by 6 feet by 7 feet, closed except for a grated window 1 foot by 1.5 foot, and a grated door 1 3-4 feet by 6 feet. It has not been used lately.

The Court Room.

In another wing of the basement is the "Court Room" and near by the "paddle" and the "water cure," for the treatment of obstinate cases.

THE FEMALE DEPARTMENT.

This department is situated outside of the main wall, at the east end of the Spring Street side. It and a yard are enclosed by a secondary wall. The building is old and, in many respects, poorly adapted for the purpose for which it is used. It is a regular fire-trap and is an unsanitary place. There is no cellar and the stone floor, resting on the ground, is damp. Carpets on the first floor become mouldy. During rains the water runs in under the front door, as the walk is higher than the door sill. The yard is partially paved with brick, the rest being in grass or gravel. An open drain crosses the brick, but it carries only city water and a little wash water. The yard is not so bad except that it is low, and its proximity to the railroad prevents the drying of white clothes out-of-doors.

The Matron's Rooms.

These rooms are in front on the ground floor, and are dark. The

bath room sorely needed new plumbing and fixtures, which were put in during July and August, 1903.

The Matron's Kitchen.

This kitchen is in the front of an L, the east end being 16 feet and the south wing 30 1-3 feet long. At the west end of the 30 foot strip a door opens into a dark hall. At the east side of the 16 foot strip there is a window, 2 feet by 6 feet, opening under a shed, and, in addition, a window 1 1-3 feet by 2 feet in an outside door. The kitchen is extremely dark and it is necessary to burn gas all the time.

The Laundry Kitchen.

On the ground floor there is also the laundry kitchen, a large room of which one end is used for a laundry and the other end for a kitchen, which is an undesirable arrangement. The light is fairly good here. The soil pipe from a floor above comes down through the laundry-kitchen, and this soil pipe springs a leak occasionally.

The down stairs closets have old hoppers with the S trap. The floor is of stone and has holes in it, covered over with boards. The holes cannot be filled up as the pipes are small and frequently become clogged, and the plumber has to reach these pipes through the holes in the floor.

One good feature is to be noted, namely, the provision, on the ground floor, for turning the condensed steam into a cistern and saving it for washing the hands and faces of those in the department.

Sewing Room.

This room is on the second floor and is 39 feet by 25 feet by 10 feet. Seven windows are on the south side, but each is only 2 feet wide and 6 feet high with the top of the window 2 feet from the ceiling. An eighth window is at the east end, but it is at the end of a narrow passageway, between cells and can be seen only from a narrow strip across one side of the room. A ninth window is at the west end in the stairway, and contributes but little light to the sewing room. A tenth window on the west side is covered. This room is dark, yet it must serve as the sewing room for a score of female convicts. The window space is only one eighth of the floor space, and part of it is of imperfect service.

Along the north wall is a row of eight bad, dark, close cells. They measure 7.5 feet by 5 feet wide by 10 feet high. The door is 2 feet by 5.75 feet. A hole 8 inches by 12 inches is at the far end of the cell for ventilation. It is 2 feet from the floor and leads out into the court.

There are two corner cells, each 7.5 feet by 7.5 feet by 10 feet

high, and each has two windows. These corner cells are light and satisfactory, as are two west end cells, each 7.5 feet by 4 feet by 10 feet high, and having a window apiece.

On the third floor are eight north side cells, one corner cell, one east end cell, and two west end cells, similar to those described on the second floor. On the north side of the third floor there are three double cells (i. e., each to accomodate two prisoners). One is the old hospital, and is 10.25 feet by 8 feet by 8.5 feet, properly lighted. The others are 8 feet by 8 feet by 8.5 feet, with a window apiece, but each has a three-quarters bed, less than 4 feet wide, on which the two inmates sleep. Of course the cells on this floor that do not have outside windows are dark and poorly arranged for ventilation.

"The Addition."

The addition contains eight cells, four on a side, each 7 1-3 feet by 4 1-2 feet by 9 1-6 feet, with the tops of the cells grated, thus improving the ventilation. These cells are in the center of the addition, with windows facing them.

The Hospital.

This is a light clean room and had been recently painted. It is 15.5 feet by 30 feet by 9.25 feet, and has five windows, 6 feet by 3 feet. There are four beds in the hospital. The bath tub and stool are separated from the rest of the room by a temporary screen. This arrangement is for convenience in moving a bed to the side of the tub. The hospital of the female department is quite satisfactory and is well cared for.

The prisoners' closet and bath room on the second floor had had the walls cleaned recently. The tubs are suitable ones for use, the fixtures being quite in contrast with the plumbing in the penitentiary proper.

The Assistant Matron's Rooms.

These rooms, on the second floor, are fitted with modern conveniences, but are very hot as they are directly over the laundry-kitchen. An electric fan was put in last summer.

The food is carried from the kitchen to the second story by a dummy elevator, operated with a rope by hand. At the time of inspection the dummy was out of order and necessitated the carrying of the food up the stairway. This frequently occurs, for when repaired the dummy soon gets out of order again. At a later visit the elevator was found in operation.

CELLS AND CORRIDORS.

In order to make the discussion of the conditions of the cells and corridors of the main prison more easily understood, it is necessary to briefly describe their arrangement.

The cells and corridors in which the prisoners remain when not at work are arranged in three halls, known as East Hall, West Hall, and New Hall. A double block extends lengthwise in the center of the hall leaving a corridor on either side next to the wall of the hall. The cells of each block are in five tiers, or ranges, with a walk leading along in front of the doors of each range above the first. The walks are of wood, supported by iron frames. The ranges are numbered from one to five from the floor up. The cells of each range are numbered from one end of the block. The blocks are lettered. Therefore "4th C 21" means the 21st cell from the end on the fourth range of block C.

EAST HALL.

This hall is 350 feet long by 45 feet wide by 54 feet high at the walls and some 12 feet higher at the peak. It has four cupolas, each 16.5 feet by 5.5 feet. One hundred and two windows are in service on the south side and ninety-two on the north side. The windows are in four rows and most of them are 5.75 feet by 3.66 feet, but some are only 3 feet 2.5 inches wide. Twenty-two feet have been cut off from the east end of corridor A on the first and second ranges and included with the annex. This removes five cells each from 1st and 2d A. The two double blocks in this hall make blocks A, B, C and D. B and D are on the south side. With thirty-five cells in a range (except as noted) this hall has 690 single cells, each 6 feet 8 inches high by 3 feet 4 inches wide by 6 feet 10 inches long. The stone floor of the first range and corridor rests on the ground. The walls are of stone, two feet thick. Complaint is made of the cells being damp. The opening into the cell is 1 foot 6 inches by 5 feet 8 inches and is closed with a grated door, through which ventilation takes place. Each cell is provided with a bed 2 feet 2 inches wide, hinged at the wall so that it can be swung up, out of the way, with bedding, a thin mattress, an ordinary stool, a water pail, a sewage pail and a gas jet. Stands are in some of the cells.

THE ANNEX.

The annex, with its electric chair, guard room and death cell, is at the east end of East Hall. The death cell, where the prisoners awaiting electrocution are kept, is 23 feet by 20 feet 5 inches by 19 feet 2.5 inches high, and has two windows, each 5 feet 11 inches by 3 feet 6

inches. The windows are on the north side and one of them is over the foul kitchen closets, previously described. The odor entering this window with the wind is very bad. The east end of the death cell has a grated area 11 feet 5 inches by 19 feet 2.5 inches, opening into the adjoining guard room, where there is plenty of overhead space, but no apparent ventilation. Part of the beds are in the open part of the death cell and part in cells similar to those of East Hall. Two guards and eleven prisoners were in the annex at the time of inspection. This is a very unsanitary place.

WEST HALL.

West Hall is on the opposite side of the main guard room and entrance, but generally corresponds to East Hall in most ways except that it has only one double block. Block E is on the north and F on the south. There are 350 single cells, similar to those in East Hall. The experiment of making two cells into one double cell was tried in 1st E. On the south side there are 52 windows in service, each 6 feet 8 inches by 3 feet 7 inches, and 58 on the north side, each 5 feet 8 inches by 3 feet 2 inches. It will be seen that the cells have scarcely any daylight and even the corridors have none to spare when the sun is shining brightly.

NEW HALL.

The west end of West Hall opens into New Hall, without any partition, and the two form an L. New Hall is 413 feet by 50 feet by 49 feet high at the walls and has six cupolas 16.5 feet by 5.5 feet. There are two double blocks, G and I being on the east side, and H and K on the west. There are 35 cells in a range on G and H, but only 23 in I and K, making a total for the hall of 580 double cells, i. e., each capable of holding two prisoners. At present the cells on 5th I, 5th K, and 3d, 4th and 5th, G and H are used for only one prisoner each.

The cells in New Hall are 5 feet wide by 7 feet 10 inches long and 8 feet high, with the whole front end grated instead of merely the door as in the old blocks. The windows are arranged in two rows, the lower ones measuring 12 feet 3 inches by 5 feet, and the upper 15 feet by 5 feet. In the lower row there are 26 on the west side, 3 on the north, and 21 on the east; while the upper row has three additional ones on the east side. In the south end light also comes from 4 windows 8 feet 6 inches by 4 feet 6 inches and 4 more, each 8 feet 6 inches by 3 feet 6 inches. It is seen that the corridors are moderately well lighted, but the cells are dark except when in front of a window.

The corridors and cells of all the halls are artificially lighted by a poor artificial gas, although there is one arc light in New Hall. The lighting is inadequate, and the substitution of electricity would be advantageous in more ways than one.

HEATING AND VENTILATION.

The halls are heated by steam radiators, supplemented by stoves in the corridors. Fresh air comes in around the windows and doors, through open doors, open or broken windows, and through cupolas. The draughts and currents are many and varied. Sometimes the air will appear quiet, and again a draught of surprising strength will blow through a corridor.

On the afternoon, evening and night of January 1st, and the early morning of January 2d, 1904, a number of tests were made to determine the rate of movement of the air in the corridors of the various blocks. A light breeze was blowing outside. One place was found where the movement was insufficient to move the anemometer, while the maximum was 700 feet per minute, or nearly 8 miles per hour. The average rate of movement in 24 tests was 160 feet per minute. The testimony of prisoners and guards at the time was that the air was quieter than at many other times. The above movement in such open corridors would mean a surprising change of air, and is the factor of great importance which needs to be remembered in considering some of the determinations for carbon dioxide that would otherwise seem absurdly low under some of the conditions existing at the Penitentiary. The circulation of air was not alone in the corridors, for tests showed currents in at the bottom of the cell grating and out at the top. A practical demonstration of the presence of these draughts is seen where, in many of the cells, the occupants have put curtains, papers, blankets, or other articles to protect themselves from the currents of which they complain.

RATE OF AIR MOVEMENT IN HALLS.

FRIDAY AFTERNOON, JANUARY 1, 1904.

1st A Corridor.....	135 feet per minute
1st A Corridor, dining room door open.....	300 " " "
1st B Corridor.....	140 " " "
1st D Corridor.....	30 " " "
1st G Corridor.....	150 " " "

FRIDAY EVENING, 7—7:30 O'CLOCK.

Minimum Old and New halls.....	0 feet per minute
Maximum Old and New halls.....	125 " " "

FRIDAY NIGHT, 9 O'CLOCK.

1st C Corridor..... 160 feet per minute

SATURDAY MORNING, 4—5 O'CLOCK.

1st H Corridor.....	85 feet per minute
1st K Corridor.....	115 " " "
1st I Corridor, minimum.....	55 " " "
1st I Corridor, maximum.....	100 " " "
1st G Corridor, minimum.....	60 " " "
1st G Corridor, maximum.....	110 " " "
1st F Corridor.....	190 " " "
1st E Corridor, minimum.....	70 " " "
1st E Corridor, maximum.....	110 " " "
1st A Corridor.....	180 " " "
1st C Corridor, minimum.....	60 " " "
1st C Corridor, maximum.....	115 " " "
1st B Corridor.....	60 " " "
1st D Corridor.....	95 " " "

SATURDAY MORNING, JANUARY 2, 1904.

New hall, when door was opened for a squad to march out to
breakfast..... 500 feet per minute
East hall, ditto..... 700 " " "

CLEANING OF CELLS.

The cells are swept daily and mopped weekly. The corridors are mopped daily. Bed bugs have been abundantly present for years, but the fight against them has been so vigorous and persistently waged in recent years that the numbers are greatly reduced. The species is, however, not extinct. The bed frames, gratings and floors of the cells are treated twice a week with a mixture of carbolic acid, turpentine and gasoline. The "institution odor" is here somewhat modified. Once a week, or sometimes once in two weeks, gasoline is applied to the bed frames, gratings, and floors and burned; the bedding and stool having been temporarily removed.

Sheets and pillow cases are changed weekly, other bedding when it is dirty, but at least twice a year.

The walls of the corridors have been painted with "cold water paint" instead of whitewashed, and with such satisfactory results that it is now proposed to paint the cell walls in the same manner.

The test for infectiousness of the dust in the cells was given early in the report.

DETERMINATION OF THE IMPURITY OF THE AIR IN CELLS AND CORRIDORS.

In accordance with the usual sanitary practice the amount of carbon dioxide was taken as the indicator of the impurity of the air. With the usual number of variable factors due to different halls, blocks,

ranges, weather conditions, different periods of the same day, and the absence or presence of the men, it was seen that a large number of determinations would have to be made. A sub-laboratory was temporarily established at the Penitentiary hospital and, later, in the pavilion, and the entire process was carried out on the grounds by the Pettenkofer bottle process with modifications.

From eight to twenty determinations were made on each run, and the results from the eighteen are given below, arranged by dates and blocks. The time and conditions of the runs are here shown:

I. WHEN THE PRISONERS WERE OUT.

April 4, 1903, Saturday afternoon, no sunshine.....	wind 17.*
April 17, 1903, Friday afternoon, full sunshine.....	wind 11.

II. WHEN THE PRISONERS WERE IN.

a. Early morning hours, 3:30 – 7:00 A. M.

April 5, 1903, Sunday morning.....	wind 5.5
April 6, 1903, Monday morning.....	wind 12.
April 18, 1903, Saturday morning.....	wind 5.5
April 20, 1903, Monday morning.....	wind 15.
Dec. 28, 1903, Monday morning.	wind 5.5
Jan. 2, 1904, Saturday morning.....	wind 17.

b. Afternoon hours, 2 – 6 P. M.

April 5, 1903, Sunday, full sunshine.....	wind 5.66
April 19, 1903, Sunday, cloudy.....	wind 10.
Dec. 27, 1903, Sunday, cloudy... ..	wind 24.5

c. Evening hours, 6 – 9 P. M.

April 4, 1903, Saturday evening.....	wind 13.
April 19, 1903, Sunday evening.....	wind 8.
Dec. 26, 1903, Saturday evening.	wind 12.
Dec. 27, 1903, Sunday evening....	wind 19.
Jan. 1, 1904, Friday evening.....	wind 9.5

III. SPECIALS.

a. Solitary Confinement Department.

April 17, 1903, Friday afternoon, full sunshine.....	wind 5.
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b. Shops.

April 27, 1903, Monday afternoon, cloudy and rainy.....	wind 22.
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*The figure given represents the average number of miles that the wind blew per hour during the run, not the velocity at any given time.

Date.	Day.	Hour.	Men.	Site.	Tempera- ture C°.	Carbon diox- ide per 10,000 parts.
Apr. 4, '03	Saturday	4:30 P. M.	.....	Outdoors.....	1.5	4.35
Apr. 5, '03	Sunday	4:30 A. M.	.....	Outdoors.....	0.5	4.13
Apr. 5, '03	Sunday	4:25 P. M.	.....	Outdoors.....	9.	4.13
Apr. 17, '03	Friday	9:43 A. M.	.....	Outdoors.....	10.5	4.19
Apr. 17, '03	Friday	4:15 P. M.	.....	Outdoors.....	15.	4.25
Apr. 18, '03	Saturday	3:55 A. M.	.....	Outdoors.....	3.	4.59
Apr. 19, '03	Sunday	3:15 P. M.	.....	Outdoors.....	13.5	4.17
Apr. 20, '03	Monday	3:30 A. M.	.....	Outdoors.....	10.	3.53
Apr. 27, '03	Monday	3:55 P. M.	.....	Outdoors.....	18.5	2.59
Dec. 26, '03	Saturday	8:20 P. M.	.....	Outdoors.....	—14	4.15
Dec. 26, '03	Saturday	8:25 P. M.	.....	Outdoors.....	—14	4.13
Dec. 27, '03	Sunday	4:00 P. M.	.....	Outdoors.....	0.	3.72
Dec. 28, '03	Monday	6:25 A. M.	.....	Outdoors.....	—13	4.09
						Av'r'g 4.00
Apr. 19, '03	Sunday	4:00 P. M.	In	1st A Corridor.....	16.	5.23
Apr. 19, '03	Sunday	8:35 P. M.	In	1st A Corridor.....	19.	16.90
Apr. 19, '03	Sunday	4:05 P. M.	In	1st A Cell 8.....	21.5	7.68
Apr. 19, '03	Sunday	4:10 P. M.	In	1st A Cell 21.....	23.	7.00
Apr. 19, '03	Sunday	8:20 P. M.	In	1st A Cell 14.....	23.5	15.86
Apr. 20, '03	Monday	4:25 A. M.	In	1st A Cell 6.....	21.5	7.71
Dec. 27, '03	Sunday	3:00 P. M.	In	1st A Cell 8.....	18.	11.46
Dec. 27, '03	Sunday	3:05 P. M.	In	3d A Cell 4.....	19.	13.46
Dec. 27, '03	Sunday	3:10 P. M.	In	3d A Cell 8.....	21.	13.20
Dec. 27, '03	Sunday	3:20 P. M.	In	34th B Corridor.....	17.	14.04
Apr. 19, '03	Sunday	4:20 P. M.	In	2d B Cell 16.....	24.	9.47
Apr. 19, '03	Sunday	4:45 P. M.	In	4th B Cell 5.....	24.5	7.01
Apr. 20, '03	Monday	4:55 A. M.	In	1st B Cell 21.....	20.5	9.74
Apr. 20, '03	Monday	5:00 A. M.	In	3d B Cell 9.....	22.	9.85
Dec. 27, '03	Sunday	3:15 P. M.	In	4th B Cell 9.....	19.	13.69
Dec. 28, '03	Monday	4:40 A. M.	In	1st B Cell 11.....	13.	8.52
Jan. 2, '04	Saturday	6:28 A. M.	In	1st B Cell 28.....	19.	9.89
Jan. 2, '04	Saturday	6:40 A. M.	In	4th B Cell 14.....	19.	14.28
Apr. 4, '03	Saturday	3:55 P. M.	Out	1st C Corridor.....	14.	5.97
Apr. 4, '03	Saturday	4:05 P. M.	Out	4th C Corridor.....	16.5	5.67
Apr. 4, '03	Saturday	7:15 P. M.	In	1st C Corridor.....	16.	11.37
Apr. 5, '03	Sunday	5:25 A. M.	In	1st C Corridor.....	15.	7.03
Apr. 5, '03	Sunday	6:40 A. M.	In	4th C Corridor.....	16.5	8.56
Apr. 5, '03	Sunday	5:25 P. M.	In	1st C Corridor.....	16.5	11.87
Apr. 5, '03	Sunday	5:40 P. M.	In	4th C Corridor.....	20.5	18.95
Apr. 6, '03	Monday	4:50 A. M.	In	1st C Corridor.....	17.	8.60
Apr. 6, '03	Monday	5:00 A. M.	In	3d C Corridor.....	18.	10.97

Date.	Day.	Hour.	Men	Site.	Temperature C°	Carbon dioxide per 10,000 parts.
Apr. 17, '03	Friday	4:20 P. M.	Out	1st C Corridor.....	16.	4.84
Apr. 17, '03	Friday	4:35 P. M.	Out	3d C Corridor.....	18.	4.69
Apr. 17, '03	Friday	4:45 P. M.	Out	4th C Corridor.....	19.	4.93
Apr. 18, '03	Saturday	4:00 A. M.	In	1st C Corridor.....	16.	7.31
Apr. 18, '03	Saturday	4:15 A. M.	In	3d C Corridor.....	18.5	8.25
Apr. 18, '03	Saturday	4:30 A. M.	In	4th C Corridor.....	19.	8.35
Apr. 19, '03	Sunday	4:35 P. M.	In	4th C Corridor.....	21.	7.68
Apr. 19, '03	Sunday	7:42 P. M.	In	1st C Corridor.....	20.	12.97
Apr. 19, '03	Sunday	8:07 P. M.	In	4th C Corridor.....	24.5	14.22
Apr. 20, '03	Monday	3:50 A. M.	In	1st C Corridor.....	18.	11.11
Apr. 20, '03	Monday	4:00 A. M.	In	4th C Corridor.....	21.	10.41
Dec. 26, '03	Saturday	7:00 P. M.	In	1st C Corridor.....	17.	13.35
Dec. 26, '03	Saturday	7:20 P. M.	In	4th C Corridor.....	20.	14.77
Apr. 4, '03	Saturday	4:00 P. M.	Out	1st C Cell 26.....	14.	8.25
Apr. 4, '03	Saturday	4:10 P. M.	Out	4th C Cell 21.....	18.5	9.41
Apr. 4, '03	Saturday	7:20 P. M.	In	1st C Cell 26.....	19.	17.38
Apr. 4, '03	Saturday	7:25 P. M.	In	4th C Cell 21.....	22.	25.15
Apr. 5, '03	Sunday	6:10 A. M.	In	1st C Cell 26.....	20.	9.94
Apr. 5, '03	Sunday	6:30 A. M.	In	4th C Cell 21.....	19.5	10.55
Apr. 5, '03	Sunday	5:30 P. M.	In	1st C Cell 26.....	20.	11.37
Apr. 5, '03	Sunday	5:35 P. M.	In	4th C Cell 21.....	24.	19.71
Apr. 6, '03	Monday	5:35 A. M.	In	1st C Cell 32.....	19.5	10.03
Apr. 6, '03	Monday	5:50 A. M.	In	4th C Cell 21.....	22.	8.29
Apr. 17, '03	Friday	4:25 P. M.	Out	1st C Cell 18.....	18.	5.59
Apr. 17, '03	Friday	4:40 P. M.	Out	3d C Cell 21.....	20.	5.25
Apr. 17, '03	Friday	4:55 P. M.	Out	4th C Cell 20.....	21.	5.81
Apr. 18, '03	Saturday	4:05 P. M.	In	1st C Cell 18.....	19.	8.98
Apr. 18, '03	Saturday	4:20 A. M.	In	3d C Cell 21.....	21.5	9.38
Apr. 18, '03	Saturday	4:35 A. M.	In	4th C Cell 20.....	21.5	9.98
Apr. 19, '03	Sunday	4:30 P. M.	In	4th C Cell 20.....	23.	8.79
Apr. 19, '03	Sunday	4:50 P. M.	In	3d C Cell 19.....	23.	6.28
Apr. 19, '03	Sunday	7:37 P. M.	In	1st C Cell 18.....	22.	13.56
Apr. 19, '03	Sunday	7:53 P. M.	In	2d C Cell 15.....	24.	16.14
Apr. 19, '03	Sunday	7:59 P. M.	In	3d C Cell 19.....	24.	11.20
Apr. 19, '03	Sunday	8:04 P. M.	In	4th C Cell 5.....	28.5	11.94
Apr. 19, '03	Sunday	8:15 P. M.	In	4th C Cell 19.....	24.5	14.07
Apr. 20, '03	Monday	3:55 A. M.	In	1st C Cell 3.....	19.	13.27
Apr. 20, '03	Monday	4:05 A. M.	In	4th C Cell 19.....	24.	15.26
Apr. 20, '03	Monday	4:10 A. M.	In	3d C Cell 19.....	23.5	7.03
Apr. 20, '03	Monday	4:15 A. M.	In	2d C Cell 15.....	23.	7.41
Dec. 26, '03	Saturday	7:05 P. M.	In	1st C Cell.....	20.	15.24
Dec. 26, '03	Saturday	7:15 P. M.	In	3d C Cell.....	24.	15.27
Dec. 26, '03	Saturday	7:25 P. M.	In	4th C Cell.....	24.	14.47
Apr. 4, '03	Saturday	4:15 P. M.	Out	4th D Corridor.....	17.	7.11
Apr. 4, '03	Saturday	4:20 P. M.	Out	1st D Corridor.....	15.5	5.38
Apr. 4, '03	Saturday	7:33 P. M.	In	4th D Corridor.....	20.	14.69

Date.	Day.	Hour.	Men	Site.	Temperature C°	Carbon diox- ide per 10,000 parts.
Apr. 5, '03	Sunday	6:45 A. M.	In	4th D Corridor...	16.5	9.46
Apr. 5, '03	Sunday	6:48 A. M.	In	1st D Corridor.....	15.5	8.73
Apr. 5, '03	Sunday	5:44 P. M.	In	4th D Corridor.....	19.5	14.31
Apr. 5, '03	Sunday	6:00 P. M.	In	1st D Corridor.....	16.5	10.09
Apr. 6, '03	Monday	4:55 A. M.	In	4th D Corridor.....	18.	12.22
Dec. 27, '03	Sunday	7:30 P. M.	In	2d D Corridor.....	16.	14.93
Dec. 28, '03	Monday	5:15 A. M.	In	4th D Corridor.....	14.	8.38
Jan. 1, '04	Friday	7:13 P. M.	In	3d D Corridor.....	18.	17.58
Jan. 2, '04	Saturday	4:40 A. M.	In	3d D Corridor.....	19.	9.61
Apr. 4, '03	Saturday	4:18 P. M.	Out	4th D Cell 21.....	18.5	6.17
Apr. 4, '03	Saturday	4:25 P. M.	Out	1st D Cell 23.....	16.5	5.38
Apr. 4, '03	Saturday	7:27 P. M.	In	4th D Cell 27.....	22.5	23.64
Apr. 4, '03	Saturday	7:40 P. M.	In	1st D Cell 23.....	22.	16.59
Apr. 5, '03	Sunday	6:25 A. M.	In	4th D Cell 21.....	19.	7.12
Apr. 5, '03	Sunday	6:18 A. M.	In	1st D Cell 23.....	18.	7.28
Apr. 5, '03	Sunday	5:55 P. M.	In	4th D Cell 21.....	24.	15.63
Apr. 5, '03	Sunday	6:05 P. M.	In	1st D Cell 23.....	20.	11.07
Apr. 6, '03	Monday	5:40 A. M.	In	1st D Cell 23.....	19.5	8.96
Apr. 6, '03	Monday	5:55 A. M.	In	4th D Cell 21.....	21.5	9.63
Apr. 19, '03	Sunday	4:25 P. M.	In	3d D Cell 18.....	22.	7.27
Dec. 27, '03	Sunday	7:28 P. M.	In	1st D Cell 2.....	18.	13.63
Dec. 27, '03	Sunday	7:45 P. M.	In	2d D Cell 19.....	22.	15.90
Dec. 27, '03	Sunday	7:50 P. M.	In	3d D Cell 4.....	22.	17.29
Dec. 27, '03	Sunday	7:55 P. M.	In	4th D Cell 16.....	23.	16.63
Dec. 28, '03	Monday	5:00 A. M.	In	2d D Cell 24.....	19.	9.84
Dec. 28, '03	Monday	4:52 A. M.	In	3d D Cell 21.....	20.	9.81
Dec. 28, '03	Monday	4:45 A. M.	In	4th D Cell 7.....	18.	9.20
Jan. 1, '04	Friday	7:05 P. M.	In	1st D Cell 18.....	19.	19.00
Jan. 1, '04	Friday	7:10 P. M.	In	3d D Cell 19.....	20.	18.69
Jan. 1, '04	Friday	7:19 P. M.	In	4th D Cell 25.....	21.	18.74
Jan. 2, '04	Saturday	4:25 A. M.	In	1st D Cell 24.....	19.	12.85
Jan. 2, '04	Saturday	4:30 A. M.	In	3d D Cell 24.....	21.	9.92
Jan. 2, '04	Saturday	4:36 A. M.	In	4th D Cell 7.....	22.	10.13
Dec. 27, '03	Sunday	8:00 P. M.	In	1st E Cell 30.....	22.	12.04
Dec. 28, '03	Monday	6:23 A. M.	In	5th E Cell 8.....	18.	10.39
Jan. 1, '04	Friday	7:26 P. M.	In	5th E Cell 16.....	21.	20.30
Jan. 2, '04	Saturday	4:50 A. M.	In	5th E Cell 12.....	20.	10.27
Jan. 2, '04	Saturday	5:57 A. M.	In	5th E Cell 15.....	19.	13.12
Jan. 2, '04	Saturday	6:02 A. M.	In	5th E Cell 19.....	19.	9.68
Apr. 20, '03	Monday	5:35 A. M.	In	5th F Cell 7.....	19.	7.12
Apr. 20, '03	Monday	5:40 A. M.	In	2d F Cell 9.....	17.5	8.87
Dec. 28, '03	Monday	6:05 A. M.	In	2d F Cell 13.....	17.	8.41
Dec. 28, '03	Monday	6:14 A. M.	In	3d F Cell 15.....	18.	8.90
Dec. 28, '03	Monday	6:18 A. M.	In	4th F Cell 5.....	18.	11.59
Apr. 4, '03	Saturday	5:20 P. M.	Out	4th G Corridor.....	13.	5.17
Apr. 5, '03	Sunday	4:40 A. M.	In	1st G Corridor.....	13.5	5.81
Apr. 5, '03	Sunday	4:45 A. M.	In	4th G Corridor.....	17.	12.18

Date.	Day.	Hour.	Men	Site.	Temperature °C	Carbon diox- ide per 10,000 parts.
Apr. 5, '03	Sunday	3:55 P. M.	In	1st G Corridor.....	18.	11.54
Apr. 5, '03	Sunday	4:08 P. M.	In	4th G Corridor.....	18.5	13.26
Apr. 6, '03	Monday	4:40 A. M.	In	1st G Corridor.....	16.	6.62
Dec. 26, '03	Saturday	7:40 P. M.	In	1st G Corridor.....	10.	11.18
Dec. 26, '03	Saturday	8:00 P. M.	In	5th G Corridor.....	12.	16.27
Dec. 28, '03	Monday	5:42 A. M.	In	5th G Corridor.....	15.	8.42
Apr. 4, '03	Saturday	5:15 P. M.	Out	1st G Cell 4.....	12.5	6.34
Apr. 4, '03	Saturday	5:25 P. M.	Out	4th G Cell 10.....	14.	8.12
Apr. 4, '03	Saturday	7:45 P. M.	In	4th G Cell 10.....	18.5	13.09
Apr. 5, '03	Sunday	4:42 A. M.	In	1st G Cell 4.....	15.	6.20
Apr. 5, '03	Sunday	4:48 A. M.	In	4th G Cell 10.....	18.	9.37
Apr. 5, '03	Sunday	4:00 P. M.	In	1st G Cell 4.....	19.	9.77
Apr. 5, '03	Sunday	4:05 P. M.	In	4th G Cell 10.....	20.	13.67
Apr. 6, '03	Monday	6:35 A. M.	In	1st G Cell 4.....	19.5	8.25
Apr. 6, '03	Monday	6:56 A. M.	In	5th G Cell 10.....	18.5	7.28
Apr. 19, '03	Sunday	2:48 P. M.	In	3d G Cell 7.....	18.5	7.92
Dec. 26, '03	Saturday	7:45 P. M.	In	1st G Cell.....	12.	11.23
Dec. 26, '03	Saturday	7:50 P. M.	In	3d G Cell.....	13.	10.28
Dec. 26, '03	Saturday	7:53 P. M.	In	4th G Cell 12.....	17.	12.54
Dec. 28, '03	Monday	5:20 A. M.	In	1st G Cell 12.....	14.	8.83
Dec. 28, '03	Monday	5:26 A. M.	In	2d G Cell 13.....	14.	7.38
Dec. 28, '03	Monday	5:31 A. M.	In	4th G Cell 12.....	17.	6.33
Dec. 28, '03	Monday	5:37 A. M.	In	5th G Cell 13.....	13.	9.62
Apr. 4, '03	Saturday	5:27 P. M.	Out	4th H Corridor.....	13.	5.28
Apr. 4, '03	Saturday	5:35 P. M.	Out	1st H Corridor.....	12.5	4.41
Apr. 4, '03	Saturday	7:55 P. M.	In	4th H Corridor.....	17.5	15.44
Apr. 5, '03	Sunday	4:55 A. M.	In	4th H Corridor.....	17.0	7.75
Apr. 5, '03	Sunday	5:10 A. M.	In	1st H Corridor.....	12.5	5.86
Apr. 5, '05	Sunday	4:12 P. M.	In	4th H Corridor.....	20.0	13.63
Apr. 5, '03	Sunday	4:15 P. M.	In	1st H Corridor.....	18.0	13.95
Apr. 6, '03	Monday	4:45 A. M.	In	4th H Corridor.....	17.0	8.08
Apr. 17, '03	Friday	2:50 P. M.	Out	1st H Corridor.....	15.	5.01
Apr. 17, '03	Friday	3:05 P. M.	Out	3d H Corridor.....	15.5	5.76
Apr. 18, '03	Saturday	6:00 A. M.	In	5th H Corridor.....	14.	5.24
Apr. 18, '03	Saturday	6:05 A. M.	In	3d H. Corridor.....	12.5	4.96
Apr. 18, '03	Saturday	6:10 A. M.	In	1st H Corridor.....	11.5	5.14
Apr. 19, '03	Sunday	2:30 P. M.	In	1st H Corridor.....	15.5	5.57
Apr. 19, '03	Sunday	2:50 P. M.	In	3d H Corridor.....	18.	7.11
Apr. 19, '03	Sunday	6:30 P. M.	In	1st H Corridor.....	16.	5.58
Apr. 19, '03	Sunday	7:15 P. M.	In	5th H Corridor.....	20.	9.18
Apr. 20, '03	Monday	3:35 A. M.	In	1st H Corridor.....	16.	6.77
Apr. 20, '03	Monday	3:40 A. M.	In	5th H Corridor.....	18.	6.47
Dec. 27, '03	Sunday	8:15 P. M.	In	3d H Corridor.....	20.	12.52

Date.	Day.	Hour.	Men	Site.	Temperature C°	Carbon diox- ide per 10 000 parts.
Jan. 1, '04	Friday	8:05 P. M.	In	5th H Corridor.....	22.	14.74
Jan. 2, '04	Saturday	5:15 A. M.	In	5th H Corridor.....	20.	8.26
Apr. 4, '03	Saturday	5:30 P. M.	Out	4th H Cell 10.....	14.	8.17
Apr. 4, '03	Saturday	5:40 P. M.	Out	1st H Cell 16.....	13.	5.25
Apr. 4, '03	Saturday	7:50 P. M.	In	4th H Cell 10.....	18.5	13.37
Apr. 5, '03	Sunday	5:00 A. M.	In	4th H Cell 10.....	17.5	6.77
Apr. 5, '03	Sunday	5:20 A. M.	In	1st H Cell 16.....	14.5	7.03
Apr. 5, '03	Sunday	4:10 P. M.	In	4th H Cell 10.....	20.5	12.81
Apr. 5, '03	Sunday	4:18 P. M.	In	1st H Cell 16.....	19.5	16.30
Apr. 6, '03	Monday	6:40 A. M.	In	1st H Cell 16.....	17.5	5.97
Apr. 6, '03	Monday	6:53 A. M.	In	4th H Cell 10.....	18.	12.56
Apr. 17, '03	Friday	3:00 P. M.	Out	1st H Cell 13.....	15.5	5.53
Apr. 17, '03	Friday	3:15 P. M.	Out	3d H Cell 19.....	15.5	5.18
Apr. 17, '03	Friday	3:25 P. M.	Out	5th H Cell 14.....	16.5	4.69
Apr. 18, '03	Saturday	5:25 A. M.	In	1st H. Cell 13.....	14.	11.91
Apr. 18, '03	Saturday	5:30 A. M.	In	3d H Cell 19.....	15.	9.43
Apr. 18, '03	Saturday	5:40 A. M.	In	5th H Cell 14.....	16.	7.39
Apr. 19, '03	Sunday	2:35 P. M.	In	1st H Cell 13.....	16.5	9.69
Apr. 19, '03	Sunday	2:38 P. M.	In	2d H Cell 5.....	18.5	8.36
Apr. 19, '03	Sunday	2:43 P. M.	In	3d H Cell 19.....	18.5	8.83
Apr. 19, '03	Sunday	2:55 P. M.	In	4th H Cell 5.....	19.	9.03
Apr. 19, '03	Sunday	3:00 P. M.	In	5th H Cell 14.....	20.	9.15
Apr. 19, '03	Sunday	3:05 P. M.	In	5th H Cell 11.....	20.	9.00
Apr. 19, '03	Sunday	6:33 P. M.	In	1st H Cell 13.....	17.5	5.99
Apr. 19, '03	Sunday	6:44 P. M.	In	2d H Cell 5.....	20.	6.60
Apr. 19, '03	Sunday	6:56 P. M.	In	3d H Cell 19.....	19.	10.92
Apr. 19, '03	Sunday	7:01 P. M.	In	4th H Cell 5.....	20.	15.35
Apr. 19, '03	Sunday	7:05 P. M.	In	5th H Cell 14.....	20.5	13.32
Apr. 19, '03	Sunday	7:08 P. M.	In	5th H Cell 11.....	21.	9.91
Apr. 20, '03	Monday	5:20 A. M.	In	3d H Cell 4.....	18.	4.94
Apr. 20, '03	Monday	5:25 A. M.	In	4th H Cell 5.....	18.	5.10
Dec. 27, '03	Sunday	8:10 P. M.	In	1st H Cell 29.....	23.	12.46
Dec. 27, '03	Sunday	8:20 P. M.	In	3d H Cell 12.....	20.	15.47
Dec. 27, '03	Sunday	8:20 P. M.	In	5th H Cell 12.....	22.	14.74
Jan. 1, '04	Friday	7:35 P. M.	In	1st H Cell 14.....	22.	14.27
Jan. 1, '04	Friday	7:40 P. M.	In	3d H Cell 12.....	24.	16.59
Jan. 1, '04	Friday	7:45 P. M.	In	5th H Cell 15.....	24.	16.83
Jan. 1, '04	Friday	8:00 P. M.	In	5th H Cell 26.....	23.	16.47
Jan. 2, '04	Saturday	4:56 A. M.	In	1st H Cell 14.....	18.	9.43
Jan. 2, '04	Saturday	5:00 A. M.	In	3d H Cell 11.....	21.	9.39
Jan. 2, '04	Saturday	5:12 A. M.	In	5th H Cell 9.....	22.	9.76
Dec. 27, '03	Sunday	3:36 P. M.	In	1st K Cell 14.....	18.	9.46
Dec. 27, '03	Sunday	3:40 P. M.	In	2d K Cell 14.....	17.	10.25
Dec. 27, '03	Sunday	3:45 P. M.	In	3d K Cell 18.....	20.	10.00
Dec. 27, '03	Sunday	3:50 P. M.	In	5th K Cell 2.....	21.	11.30
Jan. 2, '04	Saturday	5:23 A. M.	In	5th K Cell 9.....	22.	9.43

Date.	Day.	Hour.	Men	Site.	Temperature °C.	Carbon dioxide per 10,000 parts.
Jan. 2, '04	Saturday	6:13 A. M.	In	5th K Cell 4.....	21.	15.23
Jan. 2, '04	Saturday	6:16 A. M.	In	5th K Cell 21.....	21.	10.14
Dec. 27, '03	Sunday	3:55 P. M.	In	5th K Corridor.....	18.	11.22
Apr. 27, '03	Monday	3:10 P. M.	In	State shop, east end.....	21.	9.43
Apr. 27, '03	Monday	3:15 P. M.	In	State shop, west end....	21.	7.08
Apr. 27, '03	Monday	3:25 P. M.	In	Idle house.	21.5	5.09
Apr. 27, '03	Monday	3:27 P. M.	In	Idle house, north end...	21.5	6.56
Apr. 27, '03	Monday	3:13 P. M.	In	Bolt No. 3.	22.5	5.27
Apr. 27, '03	Monday	3:35 P. M.	In	Bolt No. 3, north end...	22.5	5.37
Apr. 27, '03	Monday	3:40 P. M.	In	Cigar shop No. 1.....	22.	7.18
Apr. 27, '03	Monday	3:45 P. M.	In	Cigar shop No. 1.....	22.	8.76
Apr. 27, '03	Monday	3:50 P. M.	In	Cigar shop No. 3.....	23.	6.64
Apr. 17, '03	Friday	9:28 A. M.	In	Solitary cell.....	23.	7.10
Apr. 17, '03	Friday	9:33 A. M.	In	Solitary cell... ..	23.	11.97
Apr. 17, '03	Friday	9:36 A. M.	In	Solitary cell.....	23.	10.06

A review of the above 237 determinations for CO_2 brings out a number of considerations of which the more important will now be mentioned. Attention is again called to the large number of conditions that may influence any given determination and that part of these may combine to produce results making that finding an unfair basis for judging another determination unless the variable factors are also considered. In this way one determination may appear at first to be entirely out of place compared with another, but on fuller consideration the reasons for the variation become apparent. The rearrangements of the results and a discussion of the details concerned in arriving at the conclusions are omitted as they would make the report bulky and burdensome to the extreme.

THE AMOUNT OF CO_2 .

Men Out.

The excess of CO_2 in the corridors and cells over that of the outside air, when the men were not in, was found to range from .06 parts in 10,000 in the corridor of 1st H on April 4th, 1903, to 5.81 parts in a cell on 4th C on April 17th, 1903. The average excess of CO_2 with the men out was .96 parts per 10,000 for the corridors, and 2.13 parts for the cells.

Men In.

With the prisoners in, the maximum *excess of* CO_2 14.82 parts in a corridor was obtained in the 4th C, Sunday afternoon, April 5th, 1903; the minimum, .37 parts in 3d H during the early morning run of Saturday, April 18th, 1903, but the notes show the outside doors had been opened before all the air for the three H corridor samples of that run had been taken, and those results were evidently lowered thereby.

With the prisoners in, the maximum *excess of* CO_2 in a cell was 20.80 parts per 10,000, obtained Saturday evening, April 4th, 1903, in cell 21 4th C. The minimum excess of CO_2 in an occupied cell was 1.41 parts in cell 4, 3d H at 5:20 a. m., Monday, April 20th, 1903. The notes show an outside window was partially open near this cell and the wind was blowing 15 miles an hour on the outside. While an average here might be readily increased or decreased according to whether many or few samples were taken on runs favoring the presence of much or little CO_2 (see variations later) yet an average from some 125 cells in six early morning runs, three Sunday afternoon runs, and five evening runs, has some value and is accordingly given.

The average excess of CO_2 in the cells when the prisoners were in was found to be 7.5 parts in 10,000. These figures show that the currents and draughts of which the men complain so bitterly are the necessary evils to keep the carbon dioxide of the air down. Otherwise in such close quarters the CO_2 would be excessively high on account of the respiration of the men and the combustion of gas. The latter process generates much CO_2 and that the findings were not higher is another indication that the changes of air in the corridors are greater than at first thought. The substitution of electricity for gas would cut down the impurity of the air and allow draughts to be also reduced.

It is doubtful, if in three Sunday afternoon runs and five evening runs, the worst CO_2 conditions of the year were met with, and it is probable that there are times when the amount of CO_2 is higher than the results here stated.

VARIATIONS OF CO_2 DURING DIFFERENT PERIODS OF THE DAY.

The determinations of CO_2 in occupied cells were arranged according to blocks, then separated into three periods, viz., early morning, evening, and afternoon; the last being on Sundays in order to find the men in. The averages for each block and period are here given:

AVERAGE AMOUNT OF CO₂ IN OCCUPIED CELLS DURING DIFFERENT PERIODS
OF THE DAY.

PARTS PER 10,000.			
Block.	Early morning.	Sunday afternoon.	Evening.
A	7.71	10.56	15.86
B	10.32	10.96	.....
C	10.01	11.53	14.94
D	9.46	10.31	17.84
E	10.86	.....	16.17
F	8.98	.....	.....
G	7.80	10.72	11.78
H	8.31	10.40	13.02
K	11.60	10.25	.....

NOTE. A comparison between blocks should not be made from this table as the runs in different blocks were made on different days and were subject, on that account, to a greater variation than was found between blocks. The figures are for total CO₂, but the *excess of CO₂* can be approximately obtained by deducting 4 parts per 10,000.

It is seen that with one exception the carbon dioxide is lowest in the early morning, higher in the afternoon and still higher in the evenings. This is to be expected, for more gas is burning in the evening than in the afternoon and the doors are opened less. In the early morning hours, the men have been quiet, the gas turned low for some hours in the halls and not burning at all in the cells.

The exception in block K may be at least partially accounted for. One of the K averages (11.60) was from 3 cells in the run of December 27th, the other from 4 cells in the run of January 2d. The variation due to different days may have been a factor in K, and again the difference in the range height corrects half of the discrepancy, and furthermore all of the cells in the early morning run of K were on the 5th range, which is above the windows of New Hall, while 3 of the 4 afternoon samples were on the lower ranges and subject to window influences.

VARIATION IN CO₂ DUE TO INFLUENCES ON DIFFERENT DAYS.

Comparing runs in the same block and during the same period of the day, a strikingly wide variation was found in the CO₂ on different

dates. This would indicate that aside from the variation due to difference in blocks and in periods of the day, that there is an important variation due to changed conditions on different days. Probably the chief factors concerned were the temperature effects, amount and direction of the wind, and the arrangement of open windows. Only one illustration will be cited. The difference between the findings for the Sunday afternoon runs of April 5th and April 19th are as great as the difference between the early morning and afternoon runs of April 5th, and the *excess of* CO_2 in these were approximately as 1 : 2.5. Comparisons showed that when a run from any block is compared with a run previously made in the same block during a like period of the day, the change noted is indicative of a like change in nearly all of the other blocks. That is, the change depended more upon weather conditions than upon arrangements in the block as regards opened windows, etc.

It is this variation between like periods of like days of the week on the one hand and between different periods of the same day on the other hand that makes it so misleading to use general averages for comparison unless they include results from all the runs, which was not a practical procedure with so many blocks.

INFLUENCE OF SUNDAY ON CO_2 .

As the amount of time spent in the halls is greatly increased on Sunday it was desired to learn what, if any, effect was then produced on the carbon dioxide in the cells. The best data for this information will be found in blocks C, D, G and H. A proper comparison of Monday morning runs with other morning runs, and of Sunday evening runs with other evening runs leads to the conclusion that the change of air is such that there is generally no unusual accumulation of carbon dioxide due to the practice of keeping the men in the cells and corridors on Sunday. The excess of CO_2 was not greater on Sunday than on like periods of other days, and the same was true for Monday morning. The same conclusion is reached by considering the following arrangement of the runs according to the amount of CO_2 found in the cells when the men were in. The average for each block was taken in each run, then the average for the old blocks and also the new blocks. These were rated and the general standing of the run thereby determined. The run with the least CO_2 was given first rank.

STANDING OF DIFFERENT RUNS WHEN THE MEN WERE IN. JUDGED BY AMOUNT OF CO_2 IN CELLS.

1. Sunday afternoon, April 19th, 1903.
2. Sunday, early morning, April 5th, 1903.
3. Monday, early morning, December 28th, 1903.

4. Monday, early morning, April 20th, 1903.
5. Monday, early morning, April 6th, 1903.
6. Saturday, early morning, April 18th, 1903.
7. Sunday afternoon, December 27th, 1903.
8. Saturday, early morning, January 2d, 1904.
9. Sunday, evening, April 19th, 1903.
10. Sunday, afternoon, April 5th, 1903.
11. Saturday, evening, December 26th, 1903.
12. Sunday, evening, December 27th, 1903.
13. Saturday, evening, April 4th, 1903.
14. Friday, evening, January 1st, 1904.

INFLUENCES IN DIFFERENT BLOCKS.

In drawing conclusions as to the CO_2 standing of the different blocks it is permissible to make comparisons only between findings in the same run, owing to the variation between different days and periods of the same day as previously noted. Comparisons on that basis show the New Hall blocks are better than the old ones, and judged by the findings obtained the blocks ranked as follows:

G, H, K, D, A, F, E, B, C. No tests were made in I, but doubtless it ranks with K.

INCREASE OF CO_2 DUE TO RANGE ELEVATION.

By comparing individual results obtained on the same run in each block, i. e., under the same conditions, it was found in the majority of cases that the CO_2 of the occupied cells of a range increased successively from the lower to the upper ranges. In other words, the higher the range from the floor, the more CO_2 its cells contained, and the net average increase per range for all the blocks was .34 parts of CO_2 per 10,000.

This increase in CO_2 for each added height of a range was greater in the corridors than in the cells, being on an average of .68 parts per range. In this connection it should be remembered that most of the samples taken in the corridors when the men were in the building, were necessarily taken when the gas was burning in the corridors, while in the early morning runs the gas was not burning in the cells.

The increase of CO_2 for each range elevation was also true for cells and corridors when the men were out, the net average increase of CO_2 per range being .26 and .22 parts per 10,000 respectively.

SUMMARY.

It should be said that in most respects, except in the shops, those in charge of the buildings and departments are doing as well as they

can with the present conditions that are so adverse to proper sanitation.

The site of the Penitentiary is unfavorable for it is located on filled ground in a low place.

The water is that of the city's impure supply, although at present it is boiled.

The sewerage and plumbing, with exceptions, are extremely bad and need attention.

Transmission of infectious diseases by dust or lack of cleanliness appears to be *nil*.

The daily sick call and the work of the medical department deserve commendation.

In the shops and other day buildings, there is an abundant supply of fresh air, with few exceptions, but serious defects were apparent in the plumbing, the lack of safety appliances, the presence of metallic and wood dust, the failure to remove heat and fumes in places, and in the lighting, the last being especially at fault by reason of the very dirty windows where the window space was already too small.

The hospital cellar should be cleaned and changes made in the ventilation system.

The female department is a fire trap, poor in location and arrangement, and generally dark and unsanitary, but having a few redeeming features.

The cells and corridors where the prisoners are confined when not at work, and more especially those in the old blocks, are small, damp and dark. They can only be considered as unsanitary, although efforts are made to keep them clean. Unhealthy draughts are present much of the time, but are necessary with present conditions in order to obtain ventilation.

The amount of carbon dioxide in the halls varied greatly, two of the chief factors being weather and temperature conditions, and the combustion of gas. The *excess of* CO_2 in corridors, when the men were in, varied from .37 to 14.82 parts per 10,000, while the *excess of* CO_2 in occupied cells ranged from 1.41 to 20.80 with an average of 7.5 parts per 10,000. It is probable that these figures are exceeded at times, but that they do not run higher is due to the conditions that favor so many changes of air per hour in the corridors.

DEATHS FROM TUBERCULOSIS IN THE OHIO PENITENTIARY IN
TEN YEARS.

Name.	Age.	Serial Number.	Admitted to Hospital.	Died.
R. R.	22	22493	December 6, 1893	January 5, 1894
W. R.	20	24823	February 4, 1894	February 18, 1894
O. W.	53	21993	February 19, 1894	February 22, 1894
T. T.	32	24888	January 11, 1894	March 2, 1894
T. P.	22	25074	March 15, 1894	March 18, 1894
J. D.	40	24096	January 29, 1894	April 28, 1894
P. L.	53	20644	March 22, 1894	May 17, 1894
C. L.	24	23838	July 19, 1894	August 10, 1894
W. B.	28	25886	October 23, 1894	December 18, 1894
J. G.	34	20765	December, 15 1894	December 24, 1894
M. D.	20	23830	November 27, 1894	January 23, 1895
M. S.	20	25940	February 9, 1895	February 10, 1895
V. G.	36	24985	January 3, 1895	March 7, 1895
A. T.	24	16329	March 6, 1895	March 16, 1895
W. C.	49	25131	March 4, 1895	March 22, 1895
W. C.	29	26213	January 4, 1895	April 24, 1895
W. B.	25	24837	January 24, 1895	June 27, 1895
C. S.	23	27425	February 16, 1896	February 24, 1896
F. K.	24	27776	April 1, 1896	April 18, 1896
A. M.	38	22990	March 16, 1896	May 11, 1896
M. P.	38	22719	March 17, 1896	May 30, 1896
C. J.	48	27979	May 26, 1896	June 7, 1896
W. M.	28	27834	April 4, 1896	June 7, 1896
C. W.	39	25440	December 10, 1895	June 15, 1896
F. G.	22	28269	March 3, 1897	April 8, 1897
H. H.	30	28804	March 20, 1897	April 22, 1897
E. P.	27	27552	March 20, 1897	May 3, 1897
R. B.	25	27512	March 16, 1897	June 9, 1897
H. F.	29	25299	May 17, 1897	June 24, 1897
J. H.	51	22845	May 30, 1897	June 26, 1897
E. W.	23	27726	March 18, 1897	July 14, 1897
A. R.	28	28903	March 11, 1897	September 26, 1897
J. R.	22	28755	July 28, 1897	October 6, 1897
W. K.	21	28919	January 18, 1898	January 26, 1898
W. A.	27	28030	July 4, 1897	April 7, 1898
L. McD.	20	29224	January 12, 1898	April 18, 1898
L. T.	19	30337	February 26, 1898	April 17, 1898
T. H.	15	29044	March 3, 1898	May 8, 1898
S. G.	20	28883	May 2, 1898	June 10, 1898
H. R.	24	29335	May 23, 1898	June 18, 1898
F. H.	30	28180	May 23, 1898	June 27, 1898
C. A.	36	28968	June 8, 1898	July 3, 1898
E. G.	35	27734	March 19, 1897	July 16, 1898
N. D.	32	29631	February 24, 1898	July 19, 1898

DEATHS FROM TUBERCULOSIS IN PENITENTIARY—Continued.

Name.	Age.	Serial Number.	Admitted to Hospital.	Died.
G. J.	39	22640	April 4, 1898	July 19, 1898
G. H.	40	22196	July 11, 1898	July 20, 1898
O. K.	21	29097	May 27, 1898	August 2, 1898
W. J.	25	29632	July 13, 1898	August 4, 1898
F. J.	28	30576	August 17, 1898	August 17, 1898
C. W.	23	30572	July 9, 1898	September 7, 1898
J. J.	25	28508	May 23, 1898	October 11, 1898
W. P.	39	30017	September 28, 1898	October 25, 1898
J. S.	38	29230	October 15, 1898	November 17, 1898
W. T.	26	28858	September 17, 1898	December 3, 1898
A. P.	34	29115	December 30, 1898	January 2, 1899
J. W.	24	27011	March 13, 1898	January 13, 1899
H. C.	25	30325	November 21, 1898	January 20, 1899
A. S.	25	28983	July 6, 1898	March 4, 1899
J. D.	21	30718	January 31, 1899	March 5, 1899
J. J.	19	30040	February 3, 1899	April 2, 1899
F. W.	22	28105	February 15, 1899	April 9, 1899
J. McK.	20	30809	April 10, 1899	May 12, 1899
J. J.	45	30721	June 10, 1899	June 24, 1899
T. T.	22	30300	April 21, 1899	June 25, 1899
C. L. B.	19	30549	May 19, 1899	June 26, 1899
J. W.	20	30722	June 22, 1899	July 3, 1899
J. M.	21	30548	July 11, 1899	July 25, 1899
H. G.	33	29789	May 31, 1899	August 21, 1899
J. D.	44	31220	August 5, 1899	September 13, 1899
W. S.	52	27708	August 16, 1899	September 14, 1899
J. J.	25	27707	August 3, 1899	November 6, 1899
M. S.	23	31404	October 3, 1899	November 11, 1899
H. T.	27	30052	October 9, 1899	November 13, 1899
S. M.	32	29436	October 23, 1899	November 3, 1899
D. E.	54	30306	November 6, 1899	January 3, 1900
F. J.	23	31927	October 28, 1899	February 8, 1900
P. M.	47	29570	November 14, 1899	February 13, 1900
L. W.	21	29854	April 18, 1900	April 26, 1900
G. H.	20	32164	April 20, 1900	May 7, 1900
O. F.	35	25199	February 14, 1900	May 8, 1900
R. McB.	23	29531	December 16, 1899	May 12, 1900
J. H.	38	24155	March 21, 1900	May 12, 1900
B. J.	28	32305	May 4, 1900	May 22, 1900
S. W.	27	27572	May 3, 1900	June 21, 1900
J. C.	40	24951	June 27, 1900	August 3, 1900
Z. B.	24	32113	June 25, 1900	August 5, 1900
F. M.	35	32073	January 20, 1900	August 7, 1900
B. F.	38	32462	August 6, 1900	August 10, 1900
Y. D.	20	32671	August 2, 1900	August 29, 1900
M. F.	30	29785	August 16, 1900	September 7, 1900

DEATHS FROM TUBERCULOSIS IN PENITENTIARY—Concluded.

Name.	Age.	Serial Number.	Admitted to Hospital.		Died.	
W. J. F.	22	31824	May 14,	1900	September 23,	1900
J. R. H.	21	32945	December 8,	1900	December 10,	1900
A. S.	32	27087	September 17,	1900	March 11,	1901
W. R.	28	30168	July 10,	1899	March 12,	1901
G. A.	29	26532	December 6,	1900	April 29,	1901
H. C.	26	29340	June 6,	1901	June 21,	1901
L. W.	19	32686	May 8,	1901	July 2,	1901
W. P.	31	27627	April 24,	1901	July 31,	1901
M. C.	28	32680	May 13,	1901	August 5,	1901
W. J.	45	27070	June 22,	1901	August 15,	1901
J. C.	29	32378	June 24,	1901	August 23,	1901
J. C.	25	28818	July 6,	1901	October 20,	1901
L. W.	21	30975	August 30,	1901	October 20,	1901
W. S.	60	32299	October 24,	1901	November 20,	1901
W. C.	28	29172	December 4,	1901	December 20,	1901
Ann W.	24	33188	February 20,	1901	May 30,	1901
P. M.	64	33090	May 11,	1901	February 4,	1902
E. R.	34	31328	December 28,	1901	March 4,	1902
N. DeG.	43	32762	January 7,	1902	March 26,	1902
J. M.	38	26993	December 1,	1901	July 5,	1902
J. W.	38	24370	April 1,	1902	August 1,	1902
T. J.	43	33668	August 6,	1902	October 7,	1902
G. H.	32	33381	September 1,	1902	October 20,	1902
H. B.	28	33871	October 22,	1902	November 1,	1902
G. Q.	35	31048	November 15,	1902	March 29,	1903
E. C.	55	29712	March 28,	1903	May 9,	1903
J. T.	21	34697	March 18,	1903	June 3,	1903
L. L.	30	33229	March 4,	1903	June 5,	1903
C. S.	36	34532	December 13,	1902	June 21,	1903
J. R.	50	34393	July 2,	1903	July 27,	1903
C. S.	28	31898	July 9,	1903	August 8,	1903
F. S.	26	30563	April 6,	1904	April 18,	1904
B. L.	59	24873	December 23,	1903	May 10,	1904
A. W.	23	34271	July 2,	1904	July 7,	1904
J. B.	23	32095	April 22,	1904	July 9,	1904

At a meeting of the State Board of Health held October 20th, 1904, where this report was submitted, it was voted to recommend:

(a) The abandonment of the present site of the Ohio Penitentiary and the rebuilding of a modern institution planned with due regard for the health of the prisoners.

(b) That in the meantime remedial defects receive attention, such as broken or bad plumbing, poor ventilation, especially in the old cell blocks and hospital; insufficient light, unnecessary dust contamination of the atmosphere in grinding rooms, overcrowding, principally in the tobacco shops, and the protection of well prisoners against the infection from consumptives.

REPORT ON THE POLLUTION OF THE WATER SUPPLY OF PORTSMOUTH BY SEWAGE FROM THE NORFOLK AND WESTERN RAILROAD SHOPS.

A communication was received from the health authorities of Portsmouth, April 11th, 1904, which contained the following:

"At a meeting of the board of health of this city held April 4th, a special committee that had theretofore been appointed to inspect the methods of closet drainage adopted by the Norfolk and Western Railroad Company at their terminals about a mile east of Portsmouth, reported the facts in substance to be as follows:

"That the said railroad company has a number of large buildings and employs about 500 people, with the prospect of shortly increasing the number of employes and buildings, operating both day and night; they have installed a system of closets in each of their buildings and all closets are connected with a sewer that extends about 150 yards through their premises, with an outlet into low ground, or a swale, extending westward about a quarter of a mile, emptying into a small creek called Lawson's Run about 100 yards from its mouth. Said run empties into the Ohio River about a half mile east of the intake pipe of the city water works pumping station."

The matter was referred to the engineer of the Board, who visited Portsmouth April 26th, and, in company with the health officer, Dr. W. W. Smith, inspected the railroad shops and streams mentioned above. The following report was made:

The shops are located about one and one-half miles above the intake of the water works, but are outside of the corporation limits of the city. There are 500 men employed in these shops, and water-closets and bath rooms are provided in at least two different buildings.

The wastes from these discharge through a large stone drain and also through a smaller drain into a small stream, which is completely dry in summer. This stream, as is stated in the letter received from the health officer of Portsmouth, leads into Lawson's Run at a point about 300 feet from its mouth. Lawson's Run discharges into the Ohio River about a mile above the intake of the water supply. The flow of the Ohio River below Lawson's Run is so directed by dikes that the main current probably carries the pollution received from this source directly over the intake pipe.

Under the present conditions, moreover, the sewage will become stagnant in the bed of the small stream which first receives it and will cause a local nuisance to the factory employes and those living near by. Also the land near these railroad shops will soon be developed and occupied by a considerable number of people.

The discharge of sewage as is now done by the railroad company might be prevented by law in three different ways.

First, the board of health of Clay Township, in which the factory is situated, could condemn such discharge as a local nuisance.

Second, under the new law giving cities the right to protect their water supply for twenty miles up stream, the city of Portsmouth could probably restrain the railroad company from polluting its water supply.

Third, the plans for the present outlet were not submitted to the State Board of Health for approval, and it seems probable that this Board could consider that the drains now leading from the factory into the small stream constitute a system of sewerage for the reason that these drains receive as much domestic sewage as the discharge from many small towns, and also because it is expected that new houses which are to be built in the vicinity of the factory will also discharge into the present drains.

But as the railroad company is not disposed to do anything which will injure the welfare of the city, it is thought that the company would take the proper steps toward remedying the present evil if the local board of health were notified by the State Board of Health that in its opinion the discharge of sewage under the present conditions might affect the purity of the water supply of Portsmouth and also that such discharge of sewage would become a nuisance to the factory employes and those living close to the factory; and therefore sewage purification works should be built, plans for which should first be approved by the State Board of Health.

This report was submitted to the State Board of Health at its meeting held April 27th, 1904, and the Board was of the opinion that the sewage from the Norfolk and Western Railroad shops was a menace to the water supply of Portsmouth. The board of health of Portsmouth was so notified and their attention was called to a recent

amendment to Section 2433 R. S., giving the board of public service authority to prevent such pollution within twenty miles from the corporate limits of any city.

REPORT UPON THE SANITARY CONDITION OF THE SHORE OF LAKE ERIE AT PORT CLINTON.

Upon the request of the health officer of Port Clinton, Dr. H. J. Pool, the engineer, visited that village on October 4th, 1904, to inspect certain conditions relating to the sanitary welfare of the village, of which complaint had been made. In order to obtain further information, he called upon Major Kingman, U. S. Engineer, at Cleveland, who is in charge of harbor improvements on Lake Erie. The following report was made:

The village of Port Clinton, having a population of about 3,000, is located upon the shore of Lake Erie near the mouth of the Portage River.

Some twenty years ago, in order to provide a safe harbor and also to prevent the mouth of the river from being obstructed by the formation of sand bars, two river piers were built. These piers are parallel and are placed one on either side of the former mouth of the river. They extend out into the lake some 1,500 to 2,000 feet beyond the old shore line; thus causing the river to discharge into the lake 1,500 to 2,000 feet farther out than it did formerly.

The building of these river piers has had a decided influence upon the shore, by causing the formation of marshes along the old shore on both sides of the mouth of the river, but especially toward the east. It is claimed by many citizens that these river piers should be removed or that something should be done to abolish these marshes.

The result of building these river piers is described as follows: The current of the river, issuing from between the piers and entering the lake is deflected by the wind either to one side or the other; but usually toward the east. The sand, silt and other material carried by the current of the river, when brought in contact with the quieter waters of the lake, tend to settle out. The sheltered portions of the lake on either side of the river piers afford the most favorable opportunity for such sedimentation to take place; hence the formation of marshes adjacent to the old shore line and the formation of bars and shallows farther out in the lake.

This action, if allowed to continue, will cause the shore line or the outer edge of the marshes to advance into the lake as far as the

outer end of the piers; at which time the piers would have to be extended if the mouth of the river were to be kept free from obstruction by sand bars. After the piers were extended the shore line would gradually advance again, which would necessitate another extension of the piers, and so on indefinitely. If the piers were abolished a deposit would be formed in the mouth of the river.

The fundamental cause of this rapid shore building is the developing of the land which comprises the drainage area of the river. The cultivation of the soil and the clearing away of the forests cause the river to carry thousands of tons of silt into the lake during every flood; whereas forty or fifty years ago, before the land was extensively cultivated, comparatively little sediment was brought into the lake. The sediment brought down must be deposited in the general vicinity of the river's mouth; and the river piers serve the purpose of providing a place where it can be deposited without preventing navigation into the river.

It is stated by the engineers of the U. S. War Department that the only way to prevent this accumulation and consequent formation of marshes on either side of the river piers, is to keep the material dredged out and that a breakwater parallel to the shore would not keep the river open to navigation without dredging. With a hydraulic dredge, which can be operated at a small cost, material can be deposited a mile or more away from the dredge and be thus used in reclaiming and filling in low land.

At present the marshes are at such an elevation that they are covered with water at times and uncovered at times, according to the elevation of the lake. This causes the surface to be covered with a heavy growth of tall weeds. These weeds serve to retain the sewage which is discharged into them from two or three of the village sewers and also receives more or less of the pollution (consisting of sewage and other refuse from Port Clinton and places above on the stream) which is discharged through the mouth of the river. Conditions favorable to the growth of mosquitoes are created. Malaria is prevalent in the village, for which it is possible that the marshes in question are at least partially responsible. The weeds then decaying are said to cause offensive odors.

The intake for the public water supply is located about one thousand feet west of the mouth of the river (i. e., the end of the piers.) Although this intake pipe is surrounded by a rough gravel filter, this does not materially purify the water. The water supply is very much affected by the polluted river at times, as shown by analysis and by taste and odor.

CONCLUSIONS.

The marshes which have been formed along the lake shore op-

posite the village of Port Clinton should be dredged out or reclaimed by filling in and raising them above the highest level of the lake.

The future formation of marshes should be prevented by dredging whenever necessary.

The public water supply of Port Clinton is, when the wind is from an easterly direction, and possibly at other times, seriously affected by the polluted river water. Steps should therefore be taken to purify this public supply.

At this time samples of water were collected from the intake crib in the harbor and from the mouth of the Portage River. (For a report upon these see laboratory report upon water supplies.)

A copy of this report was sent to the health officer of Port Clinton. November 1st, 1904, and it was stated that probably the only way to avoid trouble from the marshes was either to dredge them or to remove the piers, but the latter he would have no authority to require. It was further stated that the pollution of their water supply was a more serious question than the subject of the marshes, and that the authorities ought to take up seriously the question of providing filtration for the water supply.

REPORT UPON A NUISANCE OCCASIONED BY DISPOSAL OF SEWAGE AT ROCKY RIVER.

Complaints were made to the Board by Mr. Roger M. Lee of Cleveland, representing the Eells family, who are large property owners at Rocky River, and also by Dr. K. K. Hastings, the health officer of that village. The engineer of the Board visited Rocky River November 4th, 1904, to make the necessary investigation. The following report was made.

The village of Rocky River is situated on the westerly side of the river of that name, and nine miles west of the center of the city of Cleveland. The population is about 1,400.

In the northeasterly portion of the corporation and bounded by Lake Erie and Rocky River on the north and east, respectively, is a large private estate covering some 130 acres and known as the Eells estate. The surface water, principally from Wooster Road, one of the village streets, naturally flowed on to this estate and to take care of this, Mr. Eells, the late owner, several years ago constructed two parallel drain pipes, each 150 feet long, extending from the entrance of his grounds to the head of a steep gully which is 300 feet long and leads to a marsh, one or two acres in extent, by the shore of the river.

These pipes were put in simply to prevent the surface water of the village streets from flooding the walks of the estate.

Later, or some four or five years ago, the Rocky River Savings & Banking Company located on Wooster Road some 300 feet away from the Eells estate, laid a pipe connecting with the above drains for the purpose, it is claimed (and with the verbal consent of Mr. Eells), of draining the rain water from the bank property. Three water-closets in the bank building were, however, connected with this pipe.

In the spring of the present year, the Cuyahoga County commissioners constructed about a mile of pavement on Wooster Road and North Ridge Road, and at the same time laid a 15-inch or 18-inch pipe beneath the pavement for the primary purpose of carrying away the surface water. About 2,000 feet of this drain in Wooster Road, and 600 feet in North Ridge Road, discharges on to the Eells estate through the above mentioned private pipes, and hence through the gully to the marsh below. The village assisted the county, it is understood, in some of the paving work, but was not responsible for the construction of the drain.

It is claimed that Ys have been put in opposite every house and vacant lot for cellar drainage and in several cases water-closet drainage is being discharged into the pipe.

It was stated by Mr. Dean, an official of the Savings Bank, that their sewer connection (for three closets) which had for the last four or five years been connected to their private drain leading to the Eells estate, has recently, when the new county drain was laid, been cut off and connected to the new drain, which, as described above, discharges at the same place as the old private one. According to the statement of the Cuyahoga County surveyor, two other similar connections were made with the new drains. One hotel, one saloon and one or more houses are also probably connected with this county drain.

The gully into which this drain ultimately discharges was inspected and found to be in a most disgraceful condition. There was a continuous flow of sewage which, though small in amount, was strong in character. The indications were that several houses at least were discharging domestic sewage at this place. The sewage coated the rocks and stood in small pools in putrefying masses, thus giving rise to extremely offensive odors. At the foot of the gully, which is about 300 feet long, the sewage spreads out on the marsh in a large pool. No direct outlet from this marsh to the river could be found and it is therefore probable that the sewage stands here until it evaporates or soaks into the already moist ground. A large amount of sewage would soon entirely flood the marsh and overflow into the river which at this point is formed, by an island, into a narrow channel and used as a harbor by a large number of yachts and other boats.

CONCLUSIONS.

It appears that the drains recently laid by the county commissioners of Cuyahoga County, primarily for storm water drainage, are being used to receive the domestic sewage from at least three, but probably several more, buildings; and that such use classes these drains as public sewers the outlet of which should meet with the approval of the State Board of Health.

The discharge of sewage through these drains into a gully and thence on to a marsh within several hundred feet of the center of the village creates conditions which are detrimental to the comfort and health of the inhabitants of the village, of the occupants of the property on to which such discharge takes place and of persons occupying boats on the river nearby.

The use of these drains for domestic purposes should be discontinued and separate sewers constructed by the village, to receive sewage only and to discharge into Lake Erie, or into Rocky River. In the latter case the sewage should first be purified in a manner satisfactory to the State Board of Health.

A copy of this report was sent to Mr. Lee, to the mayor of the village, and to the health officer, November 22, 1904. The health officer was advised that he, as health officer in lieu of a board of health, would have authority to make and enforce an order prohibiting any person from using this sewer to carry away household sewage or any other filthy substance, and that the enforcement of such an order would probably bring about the construction of necessary sewers.

REPORT UPON THE NECESSITY FOR SEWERAGE AT URBANA.

The mayor of Urbana, Mr. James B. Johnson, asked the opinion of the State Board of Health regarding the necessity for sewerage for that city. The engineer of the Board visited Urbana December 28th, 1904, to make an investigation. The following report was made:

Though the corporation of Urbana comprises about four square miles, it is said that nine-tenths of the population, or over 6,000 people, live inside of less than one square mile. The city is naturally drained by Dugan Brook and its tributary, Town Branch. Dugan Brook enters Mad River some two miles southwest of Urbana.

There are no sewers at present in the city except a few short storm sewers. Urbana has had a public water supply since 1878, which, ac-

According to the latest information, furnishes over 5,000 people with water. This fact would indicate that the quantity of the domestic liquid wastes to be disposed of is large.

These domestic wastes are usually discharged into cesspools in the gravelly soil beneath the city, from which they seep away or fill up the cesspool as the case may be. In the latter case the cesspools are sometimes abandoned; the filth being left in the ground; or are allowed to overflow into some open stream or gutter. City ordinances provide for the cementing of cesspools, but it has been found impossible to enforce the law. It is said that the ground water level is so high as to make it impossible for the cesspools to drain in many cases. A considerable quantity of domestic sewage is discharged directly into Dugan Brook or Town Branch.

These conditions can not but cause the soil beneath the city to be badly polluted, as is indicated by the comparatively large amount of typhoid fever which has occurred among those using private wells; according to the records on file in the office of the State Board of Health.

The public water supply which is obtained from wells located not far from the thickly settled portion of the city, only 30 to 50 feet deep in the gravel, has, according to analysis of a sample of water collected in December, 1903, not yet been seriously affected; but unless conditions are improved it will probably deteriorate in quality.

On May 10th, 1899, the former engineer of the State Board of Health made a thorough examination of the water supply of Urbana, and the following is taken from his report:

"The question of the purity of the public water supply is in two parts; First, does the subsurface water of the city reach the supply wells? and second, if it does reach it, is the water first sufficiently purified to make a potable water?

"If the water does not reach the wells there is no danger. If the water reaches the wells, but only after complete purification, there is at present no danger, but at any time the water is liable to become polluted, especially as the city is growing and no sewers, to prevent further pollution of the ground water, are even contemplated.

"North, northeast and east of the city is high ground forming on the north the dividing line between King's Creek and Dugan Brook, and on the east the line between the latter and Buck Creek. This places Urbana at the outlet of a fan-shaped watershed of a few square miles in area. All the surface and subsurface drainage of this valley must leave it by Dugan Creek, and the subsurface flow of the same creek. That the direction of this subsurface flow is the same general direction, southwest, as the surface flow, is proven by the depth at which water is found. Records of the local well diggers and drivers

show that in the northern and eastern portions of the city, water is found quite near the surface and as the southwestern portion of the town is approached, the average depth of wells gradually increases, although the surface level is falling also. All wells will not show this average result, as some water may be found at any depth where it is caught by pockets in the blue clay, but the main body of water gives the above results very clearly. In the southwestern portion of the city the level of the ground water ceases to fall and a large underground lake is formed, due, no doubt, to a dyke of impervious material in the valley below which has dammed up the subsurface water. Right in this subsurface lake, which receives the drainage from the whole city, are located the water works wells."

In July, 1899, a member of the State Board of Health inspected the conditions at Urbana and reported in part, as follows:

"While the water may have received some pollution, the agencies referred to by the engineer in his report have sufficiently purified it for domestic uses, but the growth of the city, the entire absence of a sewer system, the numerous vaults dug down into the water bearing gravel and the gradually increasing soil contamination render it improbable that this freedom from contamination can long continue and measures to preserve the purity of the supply should be at once begun.

"In the first place attention is called to the entire absence of sewers. A town as old and prosperous as Urbana ought to have a complete system of sanitary sewers and such storm water sewers as may be necessary to carry off the washing of the streets, alleys and yards, and the attention of the authorities should be called to this defect in their sanitary condition. A system of sewers completed, house and closet connections should be compulsory and all vaults should be thoroughly cleaned out and filled up."

CONCLUSIONS.

From previous investigations made by the State Board of Health, and also from information obtained from the city officials during the recent investigation, it appears:

First, that the use of cesspools under the conditions which obtain at Urbana is unsatisfactory, unsanitary and dangerous to the health of persons owning the cesspools and to the community at large.

Second, that private wells have become badly polluted on account of the large amount of filth which has been placed in the ground.

Third, that the public water supply, though still a safe and usable water according to an analysis made a year ago, is liable at any time to become seriously affected whenever the natural agencies refuse to purify the filth which is being placed in ever increasing amounts into the ground beneath the city.

Fourth, the city of Urbana should install a sewerage system and sewage disposal plant, and abolish all present cesspools and vaults. As a preliminary step towards accomplishing this, a competent engineer, well informed and experienced in matters pertaining to sewerage, should be retained at once to make the necessary surveys and plans.

A copy of this report was sent to the mayor of Urbana on January 3d, 1905.

REPORT UPON THE POLLUTION OF WATER IN COAL MINES AT WELLSTON BY SEWAGE FROM A SCHOOL HOUSE.

The city solicitor of Wellston, Mr. E. T. Willis, requested an opinion from the State Board of Health in regard to the discharge of sewage from a school house into a coal mine beneath the city. Accordingly the engineer of the Board visited Wellston on October 24th, 1904, to make the necessary investigation, and the following report was made:

The city of Wellston is underlaid by a vein of coal at a depth of from 40 to 100 feet below the surface. This coal has been and is being extensively mined so that the vein is pierced by numerous tunnels, all of which are said to be connected.

In order to keep the mines now being worked free from water pumps have been placed at several low points which raise the water continuously to the surface. The direction of flow of water through the mines to the pump is said to be from the northeast and though no personal inspection of the mines was made at the time of this investigation, judging from the elevation of the coal vein at different parts of the city, as given by the city engineer, this statement could not be otherwise than correct.

The continuous pumping has had the effect of draining many of the wells in the city, so that many people are forced to use the water as it is pumped from the mines. The number of families using this water is estimated at from 100 to 400, representing from five hundred to two thousand people.

The public supply of Wellston is taken from Little Raccoon Creek at a point one and one-half miles north of the city. The water is pumped into a standpipe directly from the creek and also from a storage reservoir, holding about 60,000,000 gallons, which reservoir is filled in time of flood by pumping. The distribution system has not been extended over the entire city and such extension would be

expensive as the outlying portions of the city, though covering much area, are sparsely settled. Furthermore the public supply is not sufficient with its present development to supply the present users at all times; it having been necessary within a year to introduce the water pumped from the mines, into the public mains. The water of the public supply, like that from all other surface streams when unfiltered, is subject to the possibility of pollution and is said to be always turbid, thus causing the people to use the clear mine water in preference.

For these reasons it is evident that, for the immediate future at least, the use of the mine water will be continued. As this water flows in part through mines which are being worked, it is subject to pollution by the miners, some five hundred of whom are working at present, and also by the mules. But recently an additional, and what may be said to be an unnecessary pollution, has been introduced into the mines as follows :

The Wellston board of education in making certain changes in a school house located on Broadway, near the center of the corporation, has recently bored a hole directly into a mine located beneath the school house. Through this hole the sewage of about six hundred pupils is constantly discharged. According to the statements of the city engineer and others who have been familiar with the mines for several years, the location of this hole is directly in the path of the water flowing towards the pumps and it is entirely possible that the school sewage may be pumped out with the mine water and drunk by the people. The city engineer states that this school building could have been connected with the city sewers instead of using the present method of sewage disposal.

It is said that the working of the mines in the vicinity of Wellston will be discontinued after a few years, at which time the pumps will cease to work and the water will rise in the mines and through the ground to an elevation of perhaps 30 feet below the surface. This will replenish some of the wells now dry and will allow other wells to be sunk. It is therefore probable in the future, with the large supply of ground water available from beneath the city, that such water will be largely used for manufacturing purposes, if not for domestic use, even if the proposed supply be improved and increased.

Aside from the question of using the water from the mines, it would not be desirable, as regards the general health of the community, to allow these mines underlying the city to be polluted to any considerable extent.

Hence it would seem that this underground water should be protected from gross pollution from the surface even if it is at present temporarily polluted by the working of the mine.

A copy of this report was sent to the health authorities, October 26th, 1904, and their attention was called to the law forbidding the use of a new public water supply, in whole or in part, unless such source of supply has been approved by the State Board of Health; and also to the fact that the discharge of sewage from the school house into an abandoned mine was liable to create unsanitary conditions, detrimental to the public health, and that the board of education should find some other way of disposing of the sewage.

The attention of the board of public service was also called to this law relating to public water supplies.

REPORT UPON THE NECESSITY FOR SEWERAGE AT WILLOUGHBY.

The mayor of Willoughby, Mr. W. C. Collister, requested an opinion from the State Board of Health regarding the necessity for sewerage for that village and the engineer of the Board went to Willoughby November 4th, 1904, to make an investigation. The following report was made:

The State Board of Health, April 27th, 1904, approved an outline plan of sewerage for the village of Willoughby, which consisted principally of a 15-inch main sewer (for domestic sewage only) to discharge into the Chagrin River some distance below town.

There are at present about ten private sewers, each draining one or more houses, discharging into the river. These are said to cause no nuisance.

The chief cause for complaint is the fact that a large part of the sewage of the village is discharged into open ditches where it putrefies and becomes a nuisance to many people.

One of the principal ditches begins on Wilson Avenue at the foot of Wood Street. Through a catch basin in its upper end it receives the drainage through the open gutter, from several houses on Wood Street. This catch basin is the source of serious complaint from those living nearest and from persons passing along the street. It then passes through private lands, for a distance of 600 feet, directly in the rear of several houses (which drain into it) to a second catch basin at the junction of River, Erie and Center streets. This catch basin is practically an open cesspool by the side of one of the principal streets, and the odors from it are said to be unbearable at times. From this point it passes under the street and after receiving the sewage from one or two more houses enters a gully and passes to the river. It is said

that altogether thirty houses discharge sink drainage, at least, into this ditch, together with some garbage and rubbish. This ditch, although it forms a natural outlet for surface water, is entirely unsuited to the purposes for which it is being used.

Another ditch, about 1,000 feet long, extends in a straight line along the rear of the houses on the north side of Second Street between First Street and the railroad. This is entirely an artificial ditch, dug for land drainage. After passing under the Nickel Plate and the Lake Shore and Michigan Southern Railroad tracks, which it also helps to drain, the ditch flows in a northwesterly direction towards the lake. When visited, the odors along the ditch were very offensive and the general condition very unsanitary. Numerous chickens served to convey the filth of the ditch to the steps of several of the houses. This ditch is said to receive the sink drainage from thirty to forty houses, and possibly that from some water closets. Rubbish and garbage are deposited in it to some extent; thus increasing the nuisance. The condition of this place caused twenty-one citizens last May to appeal to the State Board of Health to have the nuisance abated.

In Wright Street is a cellar drain, so called, which receives sewage from eight or ten houses and discharges into a ravine near several houses.

On account of the nature of the soil, the local board of health has issued an order prohibiting the construction of cesspools except in special cases. This partly accounts for the use of the gutters and ditches as receptacles for sewage. It also emphasizes the fact that proper sewers should be built.

No more private sewers should be allowed to discharge into the river near the village, as this would in time create a nuisance and would make the problem of proper sewerage more difficult to solve in the future.

No makeshifts should be adopted which will, sooner or later, simply transfer the nuisance to another point. The experience of many cities and villages has shown that such makeshifts are not economical in the end.

For a village of the size and the density of population of Willoughby not to have a proper sewerage system is opposed to sanitary principles and practice; especially as the soil of Willoughby does not present the successful use of cesspools.

There should be planned a complete system of domestic sewers by which the sewage will be collected in one main sewer, located as on plans which have already been approved by the State Board of Health. This main sewer, together with such tributary sewers as are now necessary, should be built at once; and all sewers built in the future should be in harmony with the general plan.

A copy of this report was sent to the mayor on November 20th, 1904, and the hope expressed that steps would at once be taken to secure the introduction of sewers.

EXAMINATIONS MADE IN THE
LABORATORY

WORK OF THE LABORATORY.

This part of the report deals with the various examinations made in the laboratory during the year ended December 31st, 1904. The work has been done by Mr. Elmer G. Horton, bacteriologist and chemist in charge of the laboratory, assisted by Miss Caroline B. Richardson.

The number of examinations during the year was 1,906.

In addition to the routine work the laboratory participated in the following special examinations:

- a. Sanitary condition of the Ohio Penitentiary.
- b. Typhoid fever at Ashtabula.
- c. Character of sewages and effluents from sewage disposal plants in Ohio.
- d. Periodical examinations of certain public water supplies.
- e. An investigation of the efficiency of filtration in public water supplies in Ohio.

The expenses of the laboratory during the year were:

Salaries	\$3,020 00
Apparatus, supplies, incidentals	390 45
Traveling expenses	131 74
<hr/>	
Total	\$3,542 19

EXAMINATIONS OF DIPHTHERIA SPECIMENS DURING 1904.

Place.	Samples.	Result.	
		Positive.	Negative.
Camden.....	4	3	1
Chicago.....	2	1	1
Columbus.....	3	....	3
Dillonvale.....	2	2	
Dublin.....	1	1	
Eric-Groton.....	2	2	
Lockington.....	1	1	
Logan.....	1	1	
Montpelier.....	1	1	
Mowrystown.....	1	1	
New Paris.....	1	....	1
Piqua.....	1	....	1
Rarden.....	6	5	1
Springfield.....	3	....	3
Xenia, O. S. & S. O. Home....	15	5	10
Total.....	44	23	21

SUMMARY OF DIPHTHERIA EXAMINATIONS.

	Samples.	Positive.	Negative.
Males.....	14	7	7
Females.....	18	10	8
Sex not stated.....	12	6	6
Total.....	44	23	21

52.3% positive findings.

EXAMINATIONS OF SPECIMENS OF SPUTUM FOR TUBERCLE BACILLI.

Place.	Samples.	Result.	
		Positive.	Negative.
Beverly.....	1	....	1
Chicago.....	1	....	1
Chillicothe.....	5	4	1
Columbus.....	5	2	3
Coshocton.....	2	....	2
Delaware.....	2	....	2
Fairfield-Madison.....	1	....	1
Ironton.....	1	....	1
Lockington.....	1	1	
Malvern.....	2	1	1
Mansfield.....	1	1	
New Madison.....	1	....	1
New Paris.....	2	....	2
Port Washington.....	3	2	1
Radnor.....	1	1	
Russellville.....	1	....	1
South Point.....	2	....	2
Spencerville.....	1	1	
Uhrichsville.....	1	....	1
Zanesville.....	1	....	1
Total.....	35	13	22

SUMMARY OF TUBERCULOSIS EXAMINATIONS.

	Samples	Positive.	Negative.
Males.....	9	5	4
Females.....	20	6	14
Sex not stated.....	6	2	4
Total	35	13	22

37.1% positive findings.

EXAMINATIONS OF MISCELLANEOUS SPECIMENS DURING 1904.

Laboratory Number.	Place.	Samples.	Nature of Samples.	Examined for	Remarks.
25-27ty	Ashtabula.....	3	Blood.....	Widal reaction.	2 pos. 1 neg.
23-24ty	Columbus.....	2	Blood.....	Widal reaction.	1 pos. 1 neg.
159	Columbus.....	1	Vaccine.....	Quality.....	Good.
	Columbus Ohio Penitentiary..	56	.....	.....	See special report.
158	Chillicothe.....	1	Milk.....	Fat.....	4.3%.
166-167	Dennison.....	2	Alum solutions	Strength.....	Variation in streng.
169	Fredericktown..	1	Dog's head....	Rabies.....	Negative.
168	Glenville.....	1	Dog's head....	Rabies.....	Positive.
165	Knox-Middlebury.....	1	Dog.....	Rabies.....	Positive.
164	Lynchburg.....	1	Sediment from water pipes...	Character.....	Chiefly carbonate and oxide of iron.
163	Mt. Vernon....	1	Dog's head....	Rabies.....	Positive.
170	Muskingum....	1	Dog's head. ...	Rabies.....	Positive.
160	Norwalk.....	1	Ice.....	Quality.....	Good.
	Oberlin.....	1	Growth from reservoir.....	Identification. .	Chara. see Sp. rep.
	Uhrichsville see Dennison....				
161	Waverly.....	1	Ice.....	Quality.....	Usable.

EXAMINATIONS OF SEWAGE AND EFFLUENTS.

Samples were examined from Alliance, Canton, Mansfield and Westerville, but as they were examined early in the year the results were included in the Report of an Examination of Sewage Purification Plants in Ohio, published in the Annual Report of the State Board of Health for 1903.

EXAMINATIONS OF WATERS.

a. Proposed Public Water Supplies.

The analytical results of samples from sources proposed for public supplies or as additions to existing supplies, together with extracts from the report of the bacteriologist and chemist, are given for the various cities and villages considered during the year 1904. For complete information see Report on Proposed Public Water Supplies.

EXAMINATION OF WATER FROM ALLIANCE. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4036	Sept. 15....	10	90	cons'd'ble	ft. earthy	.070	.110	tr.	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4036	3.22	11.1	251	33	8.0	500	126	1800	not in 50cc

This sample was collected by Mr. R. W. Pratt, engineer.

Well No. 1 of proposed supply. This is a ground water that is much harder than the present supply and also much higher in the amount of iron it contains. The water is rather unsightly from the iron and would receive decided criticism on that account as well as on account of its being harder than the water now in use. As regards freedom from organic pollution, it is at present satisfactory, and therefore preferable to the water of the present supply. The analysis shows it would be a safe water to use, but open to great objection on account of its iron content and hardness. In the untreated state it is to be considered as undesirable for a public supply.

EXAMINATION OF WATER FROM BARNESVILLE. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Sample number.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3800	July 1.....	30	1750	cons.	veg. & ea'h'	.352	.026	.004	tr
3801	July 5.....	20	30	slight	faint	.094	.012	.004	tr
3802	July 5.....	25	....	slight	faint	....	....	.004	tr

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3800	9.80	1.1	157	none	1.8	961	151	.....	.....
3801	2.31	1.2	230	2.	tr	268	86	3000	yes in lee
3802	3.72	1.2	....	....	....	.....	.....	4500	yes in lee

The first sample was collected by Mr. R. W. Pratt, and the other two by Mr. J. H. Kemmon.

No. 3,800. "West Fork of Capatina Creek on Barnesville-Somerton Road about one and one-half miles south of town." This sample was taken after rains. The sample shows a water not suitable for a public supply at the time of sampling on account of the large amount of organic matter and suspended soil borne by the water. The water was very turbid and unsightly. The rapidity with which the stream clears up is indicated by comparison with sample No. 3,801 taken four days later.

No. 3,801. "West Fork of Capatina Creek on Barnesville-Somerton Road about one and one-half miles south of town." While this sample contains a little organic matter and suspended soil, it is greatly improved in quality over 3,800. With a little sedimentation in the bottle it improved still more. The presence of colon bacilli in the stream water is not so significant as in a well water, and in this case the area drained is but sparsely populated. The chemical findings indicate only a minor in-

fluence from all sewage sources. The water is moderately high in alkalinity, but fortunately contains but little material to form scale in boilers, and will therefore be more acceptable than some waters of equal total hardness. With the chances of pollution from human excreta at a minimum, the analyses show a water that is usable for a public supply when not polluted by surface washings.

No. 3,802. "West Fork of Capatina Creek about one mile south of town." The partial examination of this additional sample gives results much like those for sample No. 3,801. A little more organic matter was present in this sample than in the one taken the same day half a mile farther south. The number of bacteria is also somewhat higher, and intestinal bacteria were present in 1 cc. portions of this sample.

EXAMINATION OF WATER FROM COVINGTON. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Received.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4065	Sept. 23. . . .	10	170	distinct	ft. earthy	.032	.022	none	none
4066	Sept. 23. . . .	12	20	v'y slight	none	.020	.024	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4065	1.07	5.2	240	26	1.1	616	130	65	not in 50cc
4066	.29	1.9	235	none	.9	340	74	65	not in 50cc

These samples were collected by Messrs. S. W. Ullery and J. C. Wagner, for the board of public service, and represent a proposed supply.

No. 4,065. From Well No. 1. 41 feet deep. This is a muddy water obtained from a well that is not polluted by surface water. This water is quite turbid, but it is largely due to suspended soil, while on the other

hand the water is comparatively free from organic pollution. Some iron is present. As regards organic pollution the water is a potable one, but the amount of suspended soil is such that consumers will complain very seriously. With the suspended material removed this water would be potable. It is in its present state only a moderately hard water compared with the ground waters of the state of Ohio.

No. 4,066. From driven well No. 6. 85 feet deep. This water is satisfactory as regards its freedom from organic pollution. It is only slightly turbid, as it contains but a small amount of iron and no suspended soil. It is a trifle softer than the preceding. The slight turbidity and sediment of this water due to its iron might receive unfavorable comment from consumers, but unless the amount of iron should increase, the complaints would be minor ones. The analysis indicates a water suitable for a public supply, but with the minor objection that it is not perfectly clear and causes a slight sediment.

EXAMINATION OF WATER FROM DALTON. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4163	Nov. 29,	20	11	very slight	earthy	.036	.500	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4163	.54	1.2	280	none	.6	353	90	85	not in 50cc

This sample was collected by Major A. Sanderson and Dr. F. F. H. Pope from the drilled artesian well on the town lot on Schultz Avenue, proposed as a new supply or an addition to the present supply.

The analysis shows a deep ground water of such freedom from organic pollution as to class it as a suitable water for a public supply. It is high in free ammonia from reduction, but this is not to be confused with the free ammonia from sewage pollution. The other findings for organic matter and the absence of intestinal bacteria show the good quality of the sample. There is an absence of those materials that cause a hard scale in boilers, viz.; incrusting constituents. The true hardness is a trifle lower than the finding for alkalinity and this water is softer than many of the ground waters of the state, but still shows some hardness. The sample contained a little iron causing a slight turbidity of the water and a slight sediment, which may lead to minor complaints if there is no opportunity for the iron to be removed, but this is not a serious factor unless the amount of iron should increase over that found in the sample sent.

EXAMINATION OF WATER FROM FOSTORIA. PROPOSED AS A
TEMPORARY SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4178	Dec. 16 rec'd	25	10	slight	earthy	.170	.006	.004	tr

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4178	.88	10.4	255	.....	....	583	.....	5600	not in 50cc

This sample was received on the 16th inst. from the superintendent of the water works company. The tag was not filled out, neither was the information blank. A letter said the sample was from the "Hebron Stone Co." and that it was the water the water works company wished to use if

the reservoir gave out before rains afforded relief from low water conditions.

The bare figures of the analysis would indicate a usable water in an emergency, but some organic matter is present and the surroundings with unfavorable conditions as regards surface washings might make the water such as to be looked upon with more disfavor.

EXAMINATION OF WATER FROM FRANKLIN. PROPOSED AS A
TEMPORARY SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4075	Sept. 29....	25	600	cons.	earthy	.184	.328	none	none
4079	Sept. 30....	tr	tr	trace	ft. earthy	.024	.054	tr	none
4081	Oct. 1.....	tr	tr	trace	ft. earthy	.032	.012	tr	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Suspended solids.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4075	2.36	4.7	233	2	192	596	.....	1000	not in 50cc
4079	.52	4.5	264	11	....	350	.....	170	not in 50cc
4081	.54	4.6	....	....	....	.....	.....	450	not in 50cc

Examination was made of the samples from this source in order to determine whether the water could be used temporarily on account of the failure of the old supply and pending the completion of the new supply. (For which, see page following.)

The first two were collected by Mr. R. W. Pratt, the last one by Mr. John B. Miller. No. 4075 represented the water from these wells when they had not been pumped to any degree, while the other samples represent the water after continued pumping. While the wells yielded a water at

first that was open to considerable objection, yet the later samples show the quality is such that the water may be used temporarily during an emergency.

EXAMINATION OF WATER FROM FRANKLIN. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4076	Sept. 29....	15	dec'	decided	none	.016	.026	.032	9.0
4102	Oct. 23 ..	10	none	none	none	.036	.012	tr	4.0

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4076	.34	6.6	128	....	....	.....	.....	1300	not in lee
4102	.62	4.5	269	14	none	354	120	5	yes in 40cc not in 50 cc

The first sample was collected by Mr. R. W. Pratt, the second by Mr. J. B. Miller from the wells of the proposed supply on the Barklow lot.

No. 4,076. This sample was taken from the three-inch driven well, but the well had not been pumped to any extent and was later abandoned for the eight-inch well.

No. 4,102. Eight-inch driven on the Barklow lot. The analysis shows a water comparatively free from fresh organic pollution and practically sterile. It is not a soft water, though softer than many of the ground waters of the state. In hardness it is practically the same as the sample of the old supply (No. 3,056) examined in August, 1903.

The eight-inch well sample shows a decided improvement over that from the three-inch well in various respects, and is a suitable water for a public supply, but it is hard.

EXAMINATION OF WATER FROM LISBON. PROPOSED ADDITIONAL SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4152	Nov. 16....	15	....	.....	.....	....	....	tr	none
4153	Nov. 16....	15	7	trace	peculiar	.028	.198	tr	none
4154	Nov. 16....	15	7	trace	peculiar	.032	.202	.002	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4152	....	230.0	.....	....	.....	.....	.....	35	not in 50cc
4153	1.11	233.2	220	13	.7	785	64	.....	not in 50cc
4154	2.64	230.0	218	14	.7	786	61	.....	not in 50cc.

These samples were collected by Mr. David Eells, health officer, and represent a proposed additional supply that was already in use.

Samples No. 4,152 and 4,154 were taken at the city hall, while 4,153 was taken at the court house, much more water being used at the latter place. The minor differences between the locations are of but little moment and do not need discussion in detail.

The water now in use at Lisbon is a deep ground water comparatively free from fresh organic pollution and therefore a healthy water for drinking purposes. It is only moderately hard, but is quite high in chlorides evidently of mineral origin. The water contains a small amount of iron making the water slightly turbid, and with a slight sediment. The analyses show the water that is now in use is usable, but has some mineral characters that may lead to some complaint.

EXAMINATION OF WATER FROM MT. VERNON. PROPOSED
ADDITIONAL SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3735	June 20.....	tr	none	none	none	.046	.002	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3735	71	27.5	340	none	.3	371	49	20	not in 50cc

This sample was collected by W. C. Pickard, from a driven well proposed as an addition to the present public supply.

This is a ground water of good quality, for it contains only merest traces of any organic matter—so slight as to permit the water to be called very good. The water differs slightly from the existing supply in minor points, but in general is quite similar to it. The present sample has less iron than did the one examined last year.

EXAMINATION OF WATER FROM NEW LONDON. PRELIMINARY TO A
PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4082	Oct. 3.	10	10	very slight	ft. earthy	.028	.114	.04	none
4083	Oct. 3.	15	10	trace	faint	.034	.320	tr	none

Sample number.	Oxygen required.	Chlorine	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4082	.74	1.5	231	11	2.0	309	91	85	not in 50cc
4083	.45	6.2	211	92	1.4	494	119	none	not in 50cc

These samples were collected by Mr. R. W. Pratt from the drilled well on the Washburn farm and the drilled well at the stove factory respectively, for examination preliminary to a proposed supply.

The results show ground waters of good quality as regards the absence of intestinal bacteria or other evidences of sewage pollution, although additional samples should be obtained from the Washburn well to note the nitrite variation.

One of the chief considerations in these preliminary samples was the question of hardness. Both would be classed as hard waters although not as hard as a great many waters now in use in this state. The stove factory water is much less desirable as it contains the material to produce scale in boilers to a much greater degree than does the Washburn water. The iron in either case would cause some complaint if not removed.

EXAMINATION OF WATER FROM PLAIN CITY. PROPOSED ADDITIONAL SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3818	July 8. ....	..	....	.....	.....	....	....	none	none
3823	July 13.	20	tr	trace	faint oily..	.042	.580	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3818	.....	19.4	....	....	..	.....	.....	31	not in 50cc
3823	.55	19.4	393	238	trace	825	241	.....	.....

These samples were collected by Mr. Wayne Mackan from the new drilled well 377 feet deep, proposed as an addition to the public supply. The chemical bottle for No. 3,818 was broken in transit.

The analytical results show a ground water of deep origin, and one that is relatively free from bacteria and other organic matter, but it is a hard water, considerably harder than the present supply as shown by the sample examined in June, 1903.

The results indicate that this water proposed as an addition to supply is of such quality as will be satisfactory for drinking purposes, but for steam and laundry uses it is harder than the present supply.

EXAMINATION OF WATER FROM WAYNESBURG. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3557	March 10...	tr	100	slight	earthy	.042	.026	.004	none
3562	March 14...	no	m.tr	mere tr	none	.120	.008	m'r tr	2.0
4073	Sept. 27....	25	240	cons	faint	.040	.430	tr	none
4164	Nov. 28... .	25	25	slight	earthy	.020	.020	tr	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3557	.42	1.6	57	40	1.2	178	64	800	not in 50cc
3562	1.04	4.8	3	44	.2	134	82	4200	not in 50cc
4073	1.01	3.8	38	none	3.0	462	108	370	not in 50cc
4164	1.03	3.2	35	59	1.0	140	34	3	not in 50cc

The first two samples were collected by Robert C. Jones, village clerk, the third by Chapin and Knowles per P. W. B. and the fourth by E. J. Crisp, assistant engineer.

No. 3,562. C. D. Brown dug well. This sample was taken in order to afford a comparison with the waters proposed as an additional public supply.

No. 3,557. Drilled well (30 feet deep) one-fourth mile northeast of town proposed supply. The results indicate a ground water of good quality, relatively free from organic matter, and furthermore quite a soft water for a ground water. Although softer than many, yet it will be found to form some scale in boilers. The amount of iron present will lead to considerable complaint if not removed, for on standing the water becomes very displeasing in appearance, and will prove objectionable in its staining of closet and bath fixtures.

The number of bacteria is likely to show a decrease when the water is pumped regularly.

With the iron removed this water should prove quite acceptable for a public supply as far as quality is concerned.

No. 4,073. Drilled well (150 feet deep) in southeast portion of town on three acre lot. The results show a ground water of deep origin and free from organic pollution, and from that side suitable for a public supply. This water contained much suspended soil making it a decidedly turbid water. The finding for iron is high, although the presence of it is not apparent to the eye in the sample on account of the presence of the suspended soil. With the iron and suspended soil removed the water would be suitable for a public supply. Like other samples from this locality it is a very soft water, being in this respect much like the sample of the present public supply, examined in June last.

The present sample shows a water that in its present condition would cause considerable complaint from consumers, but with the iron and soil removed it should prove potable, for it is a suitable water as regards organic pollution.

No. 4,164. Drilled well (30 feet deep). 182 feet north of Canal Street and 20 feet east of Market Street. Located 6 feet north of well furnishing sample No. 3,557. This water is quite similar to the sample in March allowing for such variations as might come from the difference in seasons, etc., but the present sample is lower in iron. The total hardness is practically unchanged although differently arranged. The bacterial findings and those indicative of organic pollution are satisfactory.

The iron in this water will lead to some complaint on the part of consumers if not removed; but with the iron removed this water should prove quite acceptable for a public supply.

This sample contains less iron than No. 4,073.

EXAMINATION OF WATER FROM ZANESVILLE. PROPOSED SUPPLY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3609	May 2.....	9	none	none	none	.012	.004	.002	none
3610	May 2.....	25	75	distinct	earthy	.180	.014	.008	off tr
3648	May 12.....	10	15	slight	trace	.012	.002	m'r tr	none
3649	May 12.....	17	225	distinct	earthy	.056	.530	.450	trace
3798	July 2.....	10	20	trace	very ft. et'hy	.030	.022	.040	none
3799	July 2.....	28	275	decided	earthy	.198	.048	.003	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3609	.15	2.5	181	40	trace	246	41	800a	no in 50cc
3610	2.80	14.0	69	30	2.6	233	66	375a	yes in 1cc
3648	.50	4.6	222	94	.7	378	74	.....	.....
3649	1.70	10.4	273	122	5.0	472	96	.....	.....
3798	1.07	8.9	207	95	none	392	101	100	no in 50cc
3799	4.26	24.0	97	41	trace	417	100	1900	yes in 1cc

The first four samples were collected by Dr. J. C. Crossland, member of the State Board of Health, while the remaining two were collected by Dr. Crossland and Mr. R. W. Pratt, engineer.

No. 3,609. Drilled well No. 1. 180 feet from the east bank of the river north of the city limits. The number of bacteria in this sample has but little value, for the determination was made from the chemical bottle which was not sterilized prior to sending out, but omitting the number of bacteria, the results show a ground water that is unusually free from organic matter and on that account very desirable for a public supply. This water is a little higher in carbonates than the present supply and a shade higher in its scale forming properties although it may not be found any more objectionable for boiler uses because of its freedom from sus-

pended soil. At other seasons of the year this water may be found to be harder than the present sample shows. Judged by the present condition this water is a good wholesome water that can be unhesitatingly recommended for a public supply. It is greatly superior to the present supply. A comparison of the mineral findings shows that the well water is not similar to the river.

No. 3,610. Muskingum River opposite well No. 1. Without treatment this water is vastly inferior to the preceding for a public supply, and is not suitable for an untreated supply on account of its organic pollution and the amount of suspended matter it carries. Comparison with other analyses previously made indicates the water at the time of sampling was better than it averages in the river at Zanesville.

No. 3,799. Muskingum River opposite well No. 2. This sample shows the character of the river water at another time when it is more objectionable than in No. 3,610.

No. 3,648. Drilled well No. 2. 150 feet from the river. This water is less desirable than that shown in sample No. 3,609, for it shows a little more organic matter, is not quite clear in appearance, contains more iron and is harder. With the iron removed so that people would not object to its appearance it would do for a public supply, but would be found harder than the present supply.

No. 3,798. Well No. 2, taken after pumping for some time. While the analytical findings show some increase in the organic matter from sample 3,648, yet the present sample is not removed from the class of potable waters, and is to be considered suitable for a public supply. To the consumer this water would not be distinguishable from the waters examined in 1900 in reference to a proposed public supply for Zanesville, although the analysis shows the former samples were slightly better. The present samples indicate that the water from well No. 2 is chiefly ground water and not derived from the river. While some of the increased findings in the sample from this well after pumping might be taken to indicate some little influence from the river, yet they may have come from surface influences on the watershed. In view of information gained in the study of the Muskingum and its tributaries in 1899 it would appear that there would be but slight, if any, influence directly from the river. The river water varies considerably, but the well findings are quite different from the river water in those determinations that would be similar if the waters had the same origin. The chlorides of the Muskingum have been increasing, but the increase is, in this case, indicative of mineral and not alone sewage influences. No comment is made on the findings for nitrites in sample 3,798, as it was four days from the collection until the sample was received at the laboratory. It would be desirable to have a fresh sample to ascertain the correct standing of this factor.

The analyses indicate a water that might be expected to give satis-

faction to the consumer, for although this water is somewhat harder than the present supply, yet the improved condition as regards appearance, suspended soil, and organic matter will more than offset the increase in hardness.

No. 3,649. Drilled well No. 3, 30 feet from the river. This water is not suitable for a public supply as may be seen from the analysis. It is objectionable in appearance, contains more organic and inorganic pollution than the others, and is higher in chlorides and nitrites. The chlorides might be taken to indicate a greater influence from the river, but it will be noticed that the alkalinity and incrusting constituents have increased rather than decreased on approaching the river. It would seem from present information that the water here is of quite a different character than at well No. 1, and it is also quite unlike the river water.

b. EXISTING PUBLIC WATER SUPPLIES.

A portion of the routine work of the laboratory consists in the examination of existing public water supplies where the local authorities have requested an analysis. In some cases the local authorities were asked by the State Board of Health to send samples in order that the character of emergency intake waters might be determined as well as other features of interest to consumers. The results are given below in the Report on Occasional Examinations of Existing Public Water Supplies.

The sources of the present public supplies of some of the cities and villages of Ohio are such as to indicate that their waters must, at times, receive more or less pollution. With some of these supplies the consumers have been uncomplaining, while in other cases, more or less complaint has reached the State Board of Health. Early in the year seven supplies were selected for special study, viz.: Akron, Ashtabula, Columbus, Ironton, Marietta, Painesville and Upper Sandusky. The local authorities were willing to assist and have very kindly collected samples at such times as requested. Examinations were made as frequently as other work in the laboratory would permit, and the results of the study are given in the section following as a Report on Periodical Examinations of Public Water Supplies.

For a number of years the Board has made occasional brief tests of the bacterial efficiencies of some of the water purification plants in Ohio. While sufficient funds have not yet been at our disposal to carry out the work as thoroughly as should be done, yet much benefit has been derived from the few brief examinations that have been made.

The plan has been for the bacteriologist to visit those cities and villages having purification plants and run a test covering at least parts of two days. The date of investigation was not known to the local authorities until the test was on, with the result that the early part of the test showed the usual conditions of operation and generally no change in operation occurred except by request. In several cases the Board has been able to point out defects and the operators have thus been able to improve their service and furnish the citizens with a water of improved quality. In some cases the investigations have given the citizens assurance of the efficiency of their local purification plant. These results are given in the Reports on Investigations of the Efficiency of Filtrations in Public Water Supplies.

REPORT ON OCCASIONAL EXAMINATIONS OF EXISTING PUBLIC WATER SUPPLIES.

WATER SUPPLY OF AKRON.

See Report on Periodical Examinations of Certain Public Water Supplies.

WATER SUPPLY OF ALLIANCE.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4035	Sept. 15..	30 off	20	slight.	ft. earthy	.276	.150	.008 off	none

Oxygen required.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4035	5.02	2.5	69	47	.7	238	76	400	no

The supply for Alliance is obtained from Mahoning River. This sample was taken from the present supply at the pumping station for comparison with a sample from well No. 1 of a proposed supply.

The results compared with information at hand indicate the sample represented the public supply in one of its better stages and did not show as much pollution as usual. Stream waters vary greatly and this one is no exception. The studies of last year show this supply is an unsafe one. See report for 1903, page 199.

WATER SUPPLY OF ASHTABULA.

See Report on Periodical Examinations of Certain Public Water Supplies.

WATER SUPPLY OF BATAVIA.

See Report on an Investigation of the Efficiency of Filtrations in Public Water Supplies.

WATER SUPPLY OF BLUFFTON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3713	June 7.....	17	trace	very sl.	ft. oily	.056	.192	trace	none
3714	June 7.....	12	trace	very sl.	ft. oily	.052	.164	none	none
3731	June 13.....	30	trace	very sl.	earthy	.256	.038	.008	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3713	1.34	38.8	354	160	.4	726	221	55	no
3714	1.19	37.8	347	146	.5	692	205	41	no
3731	4.95	10.0	137	none	.6	159	31	250	no

The supply is from drilled wells. See report for 1898, page 482. Samples were requested by the State Board of Health of the public supply and the emergency supply.

Nos. 3,713 and 3,714. These samples represent the present public supply, the first one having been taken from the water works wells, the second from a hydrant. The analysis indicates a water comparatively free from past or present pollution, and on that account a safe water for domestic use. The very small amount of iron present and the trace of turbidity are of no moment. The greatest criticism of this water would be on account of its hardness. It is hard and contains the materials to form a scale in boilers when used for steam purposes.

Barring the hardness it is a suitable water for a public supply.

No. 3,731. Stone quarry fed by springs. Emergency intake. It is said this emergency intake has not been used for years. The water at this time shows the presence of some vegetative matter, but does not indicate the presence of fresh sewage pollution. It is a much softer water than the public supply.

WATER SUPPLY OF CARROLLTON.

This supply is obtained from drilled wells. See Report for 1899, page 698. On account of the presence of typhoid fever the local authorities requested an examination of the public supply. An accident deprived us of the portion of the sample intended for chemical analysis, but sufficient determinations were made from the bacterial portion to show the water was a potable one and not the cause of typhoid fever.

Examination gave the following findings in parts per million.

No. 4,136. Source of sample—hydrant. Color—none. Oxygen required—.54. Nitrogen as nitrites—.008. Nitrogen as nitrates—none. Chlorine—1.4. No. of bacteria—44. Colon bacilli—not present in 50 cc.

WATER SUPPLY OF COLUMBIANA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia	Nitrites.	Nitrates.
4060	Sept. 20. .	10	trace	trace	none	.012	.004	trace	6.0
4061	Sept. 20. .	10	none	none	none	.010	.006	trace	6.0
4062	Sept. 20. .	10	none	none	none	.010	.004	trace	6.0

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4060	.39	40.7	203	.136	.3	578	187	170	no
4061	.35	40.4	197	.137	.3	563	177	19	no
4062	.30	40.4	194	.137	.3	526	166	65	no

The supply is derived from a 30-foot well blasted in the sandstone. See Annual Report for 1901, page 440. On account of the presence of typhoid fever, the board of trustees of public affairs requested an examination of samples from the public supply. No. 4,060 was taken from the reservoir, No. 4,061 from a faucet in a residence, and No. 4,062 from a hydrant near a dead end.

The results show three waters from the same supply at different sources and the analyses are quite similar, the minor variations being of no moment here. The analyses show a ground water of good quality as regards fresh organic pollution. The nitrates and chlorides are rather high as might be expected from proximity of vaults or barnyards, but a comparison with the analyses made in 1895 by Prof. C. C. Howard show the nitrates were even higher at that time, and that the water shows a general improvement from organic pollution in the present samples, although the mineral properties of the water are slightly greater now than nine years ago. The water is rather hard, but otherwise is a usable water for a public supply so long as a complete purification is maintained by nature, and there is no indication that the public water supply has been the cause of typhoid fever.

WATER SUPPLY OF COLUMBUS.

See Report on Periodical Examinations of Certain Public Water Supplies.

WATER SUPPLY OF COLUMBUS STATE HOSPITAL.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3424	Jan. 12...	none	none	none	rubber	.006	.000	trace	3.6
4141	Nov. 3 ..	10	trace	trace	trace	.026	.254	none	none
4142	Nov. 3. ..	none	none	none	none	.028	.272	none	none
4143	Nov. 3. ..	none	none	none	none	.016	.362	none	none
4144	Nov. 3 ..	trace	trace	very sl	faint	.038	.218	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3424	.43	8.6	323	73	.....	458	.....	15	no
4141	.74	2.8	346	104	.6	614	108	7	no
4142	.64	2.6	311	172	.4	776	105	8	no
4143	1.50	37.3	321	332	.4	1209	302	30	no
4144	1.20	11.6	327	192	.8	827	103	850	in 1 cc

The supply is from driven wells represented by the first sample, although additional drilled wells have been put down with the expectation of using the water for the supply. On account of the presence of typhoid fever at the State Hospital, examination of the January sample was requested by the superintendent.

No. 3424. Water of driven wells. So called "spring water." The results indicated the water was not the cause of typhoid fever, and that in its present state of purification it was a usable water, although the nitrates and chlorides indicated some past sewage influence.

Nos. 4141, 4142 and 4143. Drilled wells Nos. 1, 2 and 3 with depths as follows, 255 feet, 305 feet and 436 feet respectively. These

are deep ground waters of good quality as regards freedom from organic pollution, although 4,143 makes a less favorable showing. The sample from well No. 3 is decidedly higher in mineral matter than the other two.

The samples from wells 1 and 2 are in a general way similar to the "spring water" on January 12, but they are harder.

The three wells are pumped to the cistern (No. 4,144) where the waters mix. This water is in use for some purposes, but not yet for drinking purposes, although it can be readily turned into the pipes from which drinking water is obtained, provided the wells fail which supply the so-called "spring water" now in use.

The minor contamination of the cistern appears to be due to outside sources as the cistern is a new one.

WATER SUPPLY OF OHIO INSTITUTION FOR EDUCATION OF THE DEAF AT COLUMBUS.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3481	Feb. 2	trace	none	none	none	.036	.036	.006	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3481	.40	26.9	384	.....	768	.....	120	120	no

No. 3,481. Dug and driven well furnishing the supply used at the institution.

While one or two of the findings are a little higher than might be desirable, the analysis shows that this water was a usable one and was not the cause of typhoid fever.

WATER SUPPLY OF CONNEAUT.

See Report on Investigation of the Efficiency of Filtrations in Public Water Supplies.

WATER SUPPLY OF CONTINENTAL.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3760	June 27.....	20	trace	trace	none	.034	.304	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3760	1.25	13.7	172	289	trace	1105	210	10	no

Hydrant at Jenkins' Restaurant. Examination was made to ascertain the quality of the public supply. The results show a ground water suitable for use as regards freedom from organic pollution, but it is a hard water, and one, moreover, in which much scale forming material is present, making the water an objectionable one for steam purposes. The sample is very low in bacteria and shows less organic matter than one examined a year ago.

WATER SUPPLY OF DAYTON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4181	Dec. 21.....	10	none	none	none	.046	.002	trace	4.0

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc..	Colon present.
4181	.86	13.5	275	.....	trace	449	.....	13	no

This sample from the water works wells was examined at the request of the local authorities to ascertain if the public supply was polluted by local industries and a stock yard. Comparison was made with samples from the same supply examined in 1900 and 1902 and only minor changes noted. The supply is obtained from a series of driven wells along Mad River. See Report for 1900 page 550.

The mineral findings of the present sample are slightly higher than in previous ones from the same supply, but it is possible that such an increase could come from the absence of the dilution influence of rain water, and the fall of 1904 has been an usually dry one. The increase in chlorides and nitrates on the other hand may come from the proximity of stock yards, slaughter houses and fertilizer plants, aided by the low ground water conditions, but if such were the case then that influence is small or else there would have been a greater influence on the figures of the analysis. Again the presence of only traces of phosphates in the water at present indicates that there is no material influence as yet upon the water of the public supply. The present sample is equally as good as either of the

preceding ones in its low figures for those determinations indicative of fresh organic pollution, and is better than either of them as regards the amount of nitrogen as free ammonia. In other words, if the increase in the chlorides and nitrates, i. e., the *end products*, is due to increased pollution, and not to low ground water conditions, then the analysis shows there has been such complete purification by nature as to leave no analytical evidence of fresh organic matter or an inefficient purification. Therefore the water is at present just as wholesome for drinking and other domestic purposes as formerly. The nitrates and chlorides are of themselves not harmful. The change during the past four years is of no material importance as yet, but recent or future conditions may make other and greater changes that can be detected analytically before there is danger to the health of the consumers, and examinations of this supply at intervals would be a wise procedure.

WATER SUPPLY OF DENNISON.

See Report on an Investigation of Efficiency of Filtration of Public Water Supplies.

WATER SUPPLY OF ELYRIA.

See Report on a Water Supply of Elyria and also Report on An Investigation of Efficiency of Filtration of Public Water Supplies.

WATER SUPPLY OF FOSTORIA.

See Report on an Investigation of Efficiency of Filtration of Public Water Supplies.

WATER SUPPLY OF GENEVA.

See Report on an Investigation of Efficiency of Filtration of Public Water Supplies.

WATER SUPPLY OF GREENFIELD.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3736	June 20....	10	none	none	none	.032	.002	none	2.0
3737	June 20....	20	450	dist'ct	earthy	.324	.056	.014	2.0
3738	June 20....	15	none	none	none	.038	.002	none	2.0

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3736	1.67	10.0	302	none	.2	352	100	325	no
3737	7.00	3.2	214	none	2.1	463	86	3400	in lee
3738	1.09	10.0	303	none	.2	348	89	2600	no

Examination of these samples was made to ascertain the quality of the public supply and the quality of the water from the emergency intake. The supply is from an infiltration well with an emergency intake to Paint Creek. See Report for 1898, page 556.

Nos. 3,736 and 3,738. Water from the city mains and from the well at the water works. These samples show a ground water of good quality, and one that is suitable for a public supply. The alkalinity is high, but fortunately those substances that form a hard scale in boilers are absent, and the hardness is not so objectionable as in some supplies elsewhere.

No. 3,737. Paint Creek at emergency intake. The analysis shows a muddy water that contains considerable vegetative matter and has received some intestinal pollution as shown by the presence of intestinal bacteria. It is not a suitable water for addition to the public supply of Greenfield, and should not be admitted except in case of necessity.

WATER SUPPLY OF HARRISON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3717	June 7	14	16	very sl.	earthy	.100	.012	trace	4.0
3718	June 7	20	metr	trace	earthy	.032	.002	trace	none
3730	Jun. 12	none	none	none	ft. earthy	.022	.004	.004	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3717	1.09	4.2	275	1	.4	304	58	1500	no
3718	.99	4.2	275	22	.3	302	68	3400	no
3730	.15	7.5	273	none	.2	305	80	300	no

The supply is from driven wells and Whitewater River. See Report for 1898, page 581. Samples were requested in order to ascertain the character of the ground water portion of the supply as well as the portion derived from the river.

No. 3,717. Whitewater River. No. 3,718, hydrant, i. e., a mixture of river and well water. No. 3,730. Water works wells. These samples represent the water of the public supply. Sample No. 3,717 shows a water that contained less organic matter than usual for an open stream. It was a usable water at the time of sampling. Sample No. 3,730 from the water works wells shows a water closely like the river water as regards its mineral or inorganic contents, but that is slightly better as regards freedom from organic pollution. Therefore it is advisable to use the well water of the public supply as far as possible, and supplement

with the river water as little as possible, for the river water is likely to show greater pollution at other times. The water is rather hard, but not as bad as many in the state.

WATER SUPPLY OF IRONTON.

See Report on Periodical Examination of Certain Public Water Supplies.

WATER SUPPLY OF LAKESIDE.

See Report on an Investigation of the Efficiency of Filtration in Public Water Supplies.

WATER SUPPLY OF LANCASTER.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3647	May 12.....	10	none	none	trace	.016	.014	.004	mere tr

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3647	.55	40.2	356	57	.7	506	163	19	no

Owing to a break in the new supply installed two years previously it was necessary to return temporarily to the supply formerly used and obtained from a well and filter gallery. See Report for 1898, page 568.

Examination of this sample was requested by the local health authorities to see if the old supply could be temporarily used.

The results, like former samples from this source, indicate the undesirability of this water for a permanent supply because of the danger of pollution from the city. It would seem that owing to non-use much surface water had settled in the soil and the amount of pollution is not as great as it may be when there has been a using of water from this source for a period of time. The water is usable at present, but it is desirable to return to the new supply as soon as repairs can be made.

WATER SUPPLY OF LEIPSIK.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4012	Sept. 12..	17	trace	very sl	oily & sul	.042	.520	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4012	9.11	69.0	151	.....	.....	627	.....	43	no

The supply is derived from deep drilled wells. See Report for 1901, page 450. In 1903 an additional supply was proposed and the State Board of Health reluctantly granted approval of the same on the claim that no other water was available, but only after calling attention to the undesirable features of odor, taste, and mineral properties, and that these would cause complaint from consumers.

On account of local complaints in September, 1904, that the water contained gas and oil, examination was made of the present sample. The results show the complaints were well founded and such as were predicted before the introduction of the additional supply. There is no indication of sewage pollution.

WATER SUPPLY OF LIMA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3518	Feb. 15 ..	20	35	slight	oily	.150	.042	.002	none
3519	Feb. 15 ..	10	40	slight	ft. or none	.078	.048	trace	none
3520	Feb. 15 ..	10	15	slight	ft. or none	.076	.384	trace	none
3521	Feb. 15 ..	40 off	40	slight	3 veg.	.278	.208	.010	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3518	2.14	4.7	326	380	1.7	1044	250	.....	.....
3519	1.55	4.4	389	375	1.5	1090	206	.....	.....
3520	1.66	242.4	392	345	1.3	1526	340	.....	.....
3521	6.56	282.0	90	204	1.9	820	208	.....	.....

The supply is derived from an impounding reservoir on Lost Creek and from a variety of deep wells. See Report for 1898, page 480. There was talk of a proposed improvement in the water supply and examination of various samples was requested by the local authorities in February, 1904.

Nos. 3,518 and 3,519. Upper strata west side wells and lower strata respectively. These waters are much the same except that the water

from the upper stratum shows a greater amount of surface pollution with less purification. The water from the lower stratum would be classed as usable as regards its organic pollution while that from the upper stratum might also be called usable, though less desirable. Both waters are unsuitable for a public supply, without treatment, on account of their extreme hardness. Both waters contain some iron which is objectionable on account of the turbid appearance which it produces, and if not removed would lead to more or less complaint although not present in amount sufficient to be detrimental to health. The odor of the water is oily and would be unpleasant to one not accustomed to it.

No. 3,523. West side water from three faucets. This water is derived from the foregoing and is much like them except for a slight sedimentation making the water a little less objectionable.

No. 3,520. Deep well on east side. This water is a little less objectionable as regards its physical properties than the west side waters or the surface waters. The high free ammonia comes from reduction and as regards its organic pollution, this water is to be considered suitable for use. On the other hand it is open to serious objection on account of its mineral properties. It contains some iron and is very high in chlorides, and extremely hard. It is accordingly unsuitable for a public supply unless treated.

No. 3,521. Main Station Reservoir. This surface water shows considerable organic pollution and is not to be considered suitable for a public supply unless it is purified. While it is very high in chlorides it is softer than the preceding samples and this is especially noticed in the alkalinity, although it is still high in scale forming materials (see incrustants). This water would also receive some criticism on account of its iron content.

No. 3,522. Ottawa River about one and one-half miles above storage reservoir. The results from this surface water show considerable past sewage pollution with a deficient purification and a considerable amount of present organic pollution. Without treatment this water is not suitable for a public supply. It contains less iron and total mineral matter than the water from the Main Station Reservoir, although at the time of sampling, it was a shade harder than the latter. Both of the surface waters are still to be classed as hard waters.

WATER SUPPLY OF LORAIN.

The supply is derived from Lake Erie and treated by mechanical filtration with the use of iron and lime. See Report for 1898, page 551. A small sample was taken from a faucet in the city of Lorain at the time

of an investigation of the water supply of Elyria and examination gave the following results in parts per million, showing a potable water.

Sample No. 3,688. Collected—May 26. Alkalinity—106. Incrustants—13. No. of bacteria per cc.—50. Colon—not present in 50 cc.

WATER SUPPLY OF MARIETTA.

See report on Periodical Examination of Certain Public Water Supplies.

WATER SUPPLY OF MIDDLEPORT.

See Pomeroy.

WATER SUPPLY OF MILAN.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3719	June 8 ...	25	trace	very sl	decid veg	.196	.040	.008	none
3720	June 8 ...	20	trace	trace	decid veg	.128	.072	.014	none
3721	June 8 ..	25	trace	slight	decid veg	.510	.030	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3719	3.86	2.7	97	21	.3	180	54	1100	no
3720	2.48	4.7	126	28	.4	192	37	950	no
3721	7.87	1.5	92	92	.3	176	48	850	no

The supply is derived from an impounding reservoir and an excavated basin or pond. See report for 1901, page 452. Samples were requested for examination in order to ascertain the quality of the water.

No. 3,719. From the waterworks pond or basin furnishing the supply. This pond is some 80 feet by 130 feet and 18 feet deep.

No. 3,720. From a hydrant.

No. 3,721. From the gravel bed excavation.

These waters at this time showed only minor indications of any pollution from sewage sources, but they indicate the presence of vegetative organic matter. The water contains some carbonates and incrustants although it is much softer than many of the public supplies of the state. The analyses show a water of fair quality only for a surface water, but the organic character is not so important in this water for the reason that it is not used for drinking purposes.

WATER SUPPLY OF MILFORD CENTER.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3641	May 10 ..	10	30	slight	faint	.030	.292	trace	none
3642	May 10 ..	15	30	slight	faint	.030	.434	trace	none
3643	May 10...	17	trace	very sl	peculiar	.172	.032	.006	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	Number per cc	Colon present.
3641	.73	15.9	449	209	1.1	898	221	none	no
3642	.42	19.3	426	171	1.1	797	.....	26	no
3643	2.75	3.0	301	40	.6	387	119	950	in 50cc

The supply is derived from a large dug well. There is an emergency intake to Big Darby Creek. See Report for 1901, page 453.

Samples were requested for examination in order to ascertain the character of the regular and also of the emergency supply.

Nos 3,641 and 3,642. Water from a faucet in the village, and water from the "spring" or dug well at the water works. These samples represent the water of the regular supply of the village. There are some minor differences between the two samples that at first would suggest a little creek water had been admitted, but further consideration indicates that there is probably some variation in the water of the well. This water is a ground water that has received the characteristics of a deep water, containing a little iron and accordingly cloudy. The water is quite free from organic pollution, and low in bacteria. Therefore it is a desirable water to drink. The water is very hard and also forms a decided scale in boilers and is therefore objectionable on that account.

The analyses show this water is desirable on account of its organic purity, but is objectionably hard and contains iron.

No. 3,643. Big Darby Creek at emergency intake. This water gives evidence of much more organic matter, although at the time of sampling it was chiefly vegetative in nature. The indications are that the sample was taken at a time when the stream was in one of its better conditions. From the standpoint of health, it is best not to draw upon the emergency intake.

WATER SUPPLY OF MINERVA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3637	May 9 ...	25	8	slight	faint	.210	.018	none	2.0
3638	May 9....	10	8	very sl	ft earthy	.104	.062	me tr	none
3639	May 9....	10	none	none	none	.068	.110	none	none
3640	May 9....	8	none	none	ft earthy	.074	.094	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3637	.80	2.5	92	6	.5	136	22	80	no
3638	.70	3.6	198	16	.4	226	25	300	no
3639	.50	5.0	216	none	.5	229	45	1	no
3640	.30	3.0	215	5	.4	223	39	3	no

The supply derived formerly from Clear Fork of Sandy Creek is now obtained from drilled wells and an infiltration or "unfiltered" well. Samples were requested for analysis in order to ascertain the quality of these waters.

No. 3,637. Clear Fork of Sandy Creek near the water works. The sample shows a stream water that at the time of sampling was comparatively free from fresh organic pollution for a stream. It is no longer used as an adjunct to the public supply.

No. 3,638. "Unfiltered well" at the pumping station. This well is fed by a stream. An emergency intake leads to the pumping station from this well, but it is intended soon to abandon it. The analysis shows that the water in this well at the time of sampling was a usable water, but it may not be good at times on account of what may be carried in the stream.

Nos. 3,639 and 3,640. Water works wells and faucet in the village. These samples represent the water of the present public supply. They show a deep ground water of good quality. The water is almost free from even water bacteria and of course has no intestinal bacteria. The evidence shows an absence of organic pollution and the water is pleasing in its physical properties. The water is high in carbonates, but compared with other waters of the state it is not unusually hard, and fortunately the hardness does not appear in the form of sulphates and therefore this water forms very little scale in boilers. It is a suitable water for a public supply and no doubt gives satisfaction to the consumers.

WATER SUPPLY OF MONTPELIER.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3794	June 29 ..	20	25	slight	none	.022	.350	trace	none
3795	June 29 ..	20	25	slight	none	.020	.216	.008	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3794	.70	18.4	362	none	4.0	391	147	23	no
3795	.50	18.4	359	none	4.0	405	153	150	no

This supply is derived from deep wells. See Report for 1898, page 485. Samples were requested for analysis in order to ascertain the quality of the water.

No. 3,794 was taken from the wells furnishing the public supply; No. 3,795 was taken from a hydrant. The results show a ground water of good organic purity and therefore acceptable for drinking and domestic uses. There appear slight changes in the inorganic matter in the water from the sample examined in June, 1903, but these are of little moment to the consumer except the increase in iron and hardness, and these may not have been observed by the consumers.

Aside from the objection that may arise from the iron and hardness, this is a good water.

WATER SUPPLY OF NEWARK.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3502	Feb. 8	20	26	very sl	earthy	.078	.036	.008	trace
3576	March 25	10	none	none	none	.104	.016	.002	trace
4167	Nov. 30	10	tr'ee	trace	earthy	.022	.006	trace	none
4168	Nov. 30	10	tr'ee	trace	earthy	.020	.006	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3502	2.34	1.4	99	56	.....	254	.....	9200	in 50cc
3576	3.12	3.2	137	.....	.3	228	72	550	no
4167	.84	5.0	194	24	trace	279	69	425	in 1cc
4168	.43	4.6	200	21	trace	296	60	309	in 1cc

The water supply is derived from wells and the North Fork of Licking Creek. See Report for 1899, page 703. Approval was granted in

1901 for the installation of mechanical filters. See Report for 1901, page 66. These filters, it is said, are used only a portion of the time. Sample No. 3,576 was examined at the request of the water works company while the other three were examined at the request of the local board of health.

No. 3,502. Representing water from the reservoir and two wells. On account of the sample being a mixed one and containing surface and ground water, it is quite probable that a portion of the nitrites result from that mixture and therefore have less significance than would otherwise obtain. The chlorides and nitrates are so low as to preclude any serious amount of sewage influence. The undesirable features aside from the nitrites are the turbidity, a little vegetative organic matter, and the bacteria. It is quite probable that these are due to the admission of surface water. The turbidity is rather low, but the number of bacteria is high, and the presence of intestinal bacteria even so sparingly as in 50 cubic centimeter portions is not desirable in a public supply. It appears from the analysis as a whole that this water is a usable one with some undesirable features, and it is quite likely that these undesirable factors are less at times than at the time of sampling.

The water is relatively soft for Ohio, but it is to be noted that it is not free from scale forming material, as shown by the incrusting constituents. With the undesirable features absent or less in evidence this water would be quite acceptable.

No. 3,576. Faucet at Miller's drug store. This sample is better than the previous one, since it does not show the presence of intestinal bacteria even in 50 cc. portions of water, is free from suspended matter, and is improved in nitrogen as free ammonia and nitrites. The increase of chlorides in the present sample is in agreement with the other mineral findings and is interpreted as meaning a greater freedom of the present sample from the influence of surface waters. The present sample is a potable water of such a character as to prove acceptable to consumers.

No. 4,167. North Fork of Licking River 300 yards above the water works intake. No. 4,168. Hydrant on South Second Street.

It is reported that only water from the stream was being used at the time of sampling and that the filters were not in operation. The analytical findings bear out the statement. The minor differences between the two samples are such as would come from taking the samples from the stream at different times, and they need no special comment.

It should be borne in mind that North Fork is normally one of the better surface waters of the state as shown by the stream investigations made in 1899 by the State Board of Health. Consequently, a single analysis from this stream can show good results for an Ohio stream and yet may contain some pollution. The chemical results show that there is but a very small sewage pollution of this water, but the presence of intestinal bacteria in 1 cubic centimeter portions of the water shows this water is receiving intestinal pollution from some source. If that intestinal

pollution be from animal sources it is not such a serious matter with the citizens of Newark, but if that intestinal pollution come from human discharges it is a serious matter. Again attention should be called to the fact that after such a prolonged dry period there will be a very great pollution of the stream with the surface washings following heavy rain. With typhoid fever present at Utica, such a short distance above Newark on this stream, the danger to the latter city without filtration of the water is apparent, and that danger will be greatly increased with the addition of surface washings from Utica.

While the pollution of the Newark water at the time of sampling was small, so small as perhaps to show no effect that is noticeable in the health of the citizens, yet there is some danger and the filters should be put in operation as a safe-guard.

WATER SUPPLY OF OBERLIN.

See Report on an Investigation of the Efficiency of Filtration in Public Water Supplies.

WATER SUPPLY OF PAINESVILLE.

See Report on Periodical Examinations of Certain Public Water Supplies.

WATER SUPPLY OF PERRYSVILLE.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia	Nitrites.	Nitrates.
3762	June 29.	none	none	none	faint	.028	.340	none	trace
3763	June 29.	none	none	none	faint	.030	.252	.006	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Nitrates.
3762	.65	33.4	255	none	none	336	99	160	no
3763	.20	30.1	255	none	none	321	94	215	no

The supply is from a drilled well. See Report for 1899, page 704. Samples were requested for analysis in order to ascertain the quality of the public supply.

Sample No. 3762 was taken from the water works well and No. 3763 from a hydrant in the business district.

The analyses show a ground water of good quality, free from iron or organic pollution. While this water contains some factors to make it hard, yet it is softer than many of the public supplies of the state, and, moreover, it does not contain the materials that form the hard scale in boilers so objectionable where a water is used for steam purposes. This water should be quite satisfactory for a public supply, and doubtless is very pleasing to the consumers.

WATER SUPPLY OF POMEROY.

See Report on an Investigation of the Efficiency of Filtration in Public Water Supplies.

WATER SUPPLY OF PORT CLINTON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4094	Oct. 17...	10	20	very slight	earthy	.162	.004	.004	none
4095	Oct. 17...	10	20	very slight	earthy	.152	.014	.004	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4094	2.45	78.5	95	49	.....	296	.....	150	in lee
4095	2.50	183.0	94	78	.....	504	.....	170	in lee

The supply is derived from Lake Erie, the intake crib being in the harbor near the mouth of Portage River. See Report for 1898, page 554. Samples were taken for examination in order to ascertain whether the public supply was being polluted from Portage River. No. 4094 was taken at the intake crib. No. 4095 was taken at the mouth of Portage River. As regards organic pollution the waters are practically the same, both showing some pollution from sewage sources. However, the inorganic properties of these samples are very helpful. The sample from the mouth of the river is much higher in its mineral properties than is the normal Lake Erie water. This is most noticeable in the findings for chlorides, and it will be seen that while the water at the intake has been lowered in chlorides by dilution with lake water, yet it (water at the crib) is still more than eight times as high as the lake water.

The results show that at the time of sampling the water at the intake crib was receiving pollution from the river.

WATER SUPPLY OF PUT-IN-BAY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3841	July 19...	17	10	very sl	earthy	.124	.008	trace	none
3842	July 19...	17	10	very sl	faint	.120	.004	.006	none
3843	July 19...	19	trace	trace	earthy	.098	.010	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3841	1.77	14.6	88	5	.4	156	39	200a	in lcc
3842	1.85	14.6	88	5	.5	155	47	130	no
3843	1.55	12.0	87	6	.3	134	34	over spread	in 50cc

These waters are derived from Lake Erie. Samples were taken for analysis in order to ascertain the quality. (For analyses of various wells on this island see Miscellaneous Waters and Private Supplies elsewhere in this volume.)

No. 3,841. Water from Lake Erie through Gascoyne's intake. This is a joint supply for three or four places. The results show a modified Lake Erie water, giving some evidence of pollution by organic matter, although at the time of sampling the currents were favorable to a lessened pollution from the sewers emptying near by. The number of bacteria is not as high as it should be for this sample owing to overspreading growths interfering with the counts. The presence of intestinal bacteria in 1 cc. portions of the water shows it is not free from intestinal pollution, and therefore can not be considered a safe water at all times.

No. 3,842. Lake Erie off Ruhe's Point. This is one of the suggested points for another intake. The analysis shows an absence of intestinal bacteria in 50 cc. portions, but the chlorides are higher than in other parts of the lake. The sample was taken not far from a bathing beach that was well patronized during the run of hot weather at the time of sampling. It is claimed by some of the old residents that there is a crevasse back of the hotels and other buildings on the main street and that this drains to the lake in the direction of the location where this sample had been taken. The water is a usable one as shown by the analysis, although not wholly desirable.

No 3,843. Beebe House hydrant. This water is obtained from the lake through the Beebe House intake. The pump was not in operation at the time, and the sample represents the water that had been pumped the day before and stored in the reservoir. Intestinal bacteria were present showing intestinal pollution, but the balance of the analysis would indicate that the pumping had been done under conditions favorable to the obtaining of a water less polluted than must often be the case. On account of the presence of intestinal bacteria, indicative of intestinal pollution, the water cannot be looked upon as a water desirable for hotel use.

WATER SUPPLY OF PUT-IN-BAY. HOTEL VICTORY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3839	July 19.....	17	slight	.....	.....	.024	.044	trace	6.0
3840	July 19.....	22	10	v'y sl	earthy	.104	.004	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3839	2.10	16.0	.....	.....	.....	.....	.....	400	no
3840	1.55	26.5	90	9	.5	183	46	500	in lee

These samples were taken for analysis to show the character of the water used at this popular summer resort.

No. 3,839. Drilled well about 80 feet deep. Located in the court at Hotel Victory. The water from this well is served at the table where the employees eat. The results show it is a usable water at this time. The nitrates and chlorides indicate some influence from sewage sources, but the rest of the analysis shows that at this time the purification has been effective.

No. 3,840. Hydrant water at Hotel Victory obtained from the lake. This is the water in general use for table and room use at the hotel. The analysis shows some modifications of the usual lake water, the chief being the increased chlorides. Without question there must be at times some influence on the water around the intake pipe from the sewage emptied a short distance around the point. The presence of colon bacilli in 1 cc. of the water in this sample shows sewage influence, although at the time of sampling there was a slight current from the intake pipe toward the sewer.

The presence of intestinal bacteria in lake water where sewage is introduced near by indicates the danger that may exist if that sewage becomes infected with typhoid germs. The quality of this water changes with the conditions.

WATER SUPPLY OF RAVENNA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3723	June 9....	30	trace	very sl	faint	.254	.094	trace	none
3725	June 9....	40	10	very sl	ft ea'thy	.280	.036	none	none
3727	June 9....	....	....	....	....	....	....	none	none
3756	June 23. .	20	trace	trace	none	....	....	trace	none
3726	June 9....	30	trace	very sl	faint	.020	.004	none	none
3755	June 23. .	30	trace	very sl	faint	.028	.002	none	none
3728	June 9....	....	....	....	....	....	....	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3723	6.44	1.5	72	none	.4	120	46	.....	.....
3725	11.49	1.2	10	2	.7	67	33	.....	.....
3727	3.46	7.0	.....	.....	1.1	514	60	1500	no
3756	2.00	7.0	211	.....	.....	.....	.....	20	no
3726	5.05	1.5	70	4	.4	120	50	.....	.....
3755	7.07	1.7	75	6	.6	120	.....	120	no
3728	8.22	2.4	75	2	.3	127	59	200	no

The supply is from Muzzy Lake, Crystal Lake, and some deep wells. See Report for 1898, page 586. Samples were requested for analysis to ascertain the quality of the various waters.

No. 3,723. Crystal Lake near the intake pipe. The chemical analysis shows a very soft water with some vegetative organic matter present, but little, if any, sewage influence. It is unfortunate that a bacterial bottle was not filled at the time from this source, as the bacterial examination is the best indication of sewage pollution in such a water. The water is not altogether desirable though probably usable.

No. 3,725. Muzzy Lake. This lake formerly furnished a portion of the public supply. The analysis shows an even softer water than the preceding, but it also contains more vegetative matter and is less desirable on that account.

Nos. 3,727 and 3,756. Water works well. No chemical bottle was filled from this source in the first set of samples, and the chemical portion in the second case was lost in transit by breakage of the bottle. This is a ground water of usable quality. Some iron is present that will cause a little complaint if the water is used without dilution or aeration. The water is considerably harder than the lake waters. The number of bacteria in the first sample appears to have come from an accidental contamination of the sample.

Nos. 3,726, 3,755 and 3,728. The first two were from a faucet at the school house, the last sample from a faucet at "city barn." These samples represent the water as delivered to the consumers. The minor variations at different times and places mean but little in this supply. The water is chiefly from the surface supply. It contains some vegetative organic matter which at times may become objectionable, but the evidences of sewage pollution are wanting and the water would be classed as usable though not wholly desirable. It is one of the soft water supplies of the state as indicated by this examination.

WATER SUPPLY OF TIFFIN.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3526	Feb. 22 . .	30	20	very sl	earthy	.098	.022	.008	2.
4157	Nov. 24 .	20	trace	none	trace	.092	.010	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3526	2.94	27.3	241	.....	.....	450	.....	750	in 50cc
4157	2.24	370.0	240	182	.5	1248	245	225	no

The supply is derived from several deep wells supplemented by the Sandusky River water through an emergency intake. These samples were examined at the request of the local board of health on account of the presence of typhoid fever. Both samples represent the public supply.

No. 3,526. A comparison with former samples from this source indicates the presence of some river water and a corresponding pollution.

No. 4,157. The absence of intestinal bacteria and the low findings in those chemical determinations indicative of fresh organic pollution, show that the water of the public supply at the time of sampling was not polluted to any degree. The mineral characters of this water greatly exceed those of any previous sample obtained by us from the public supply of Tiffin or from the Sandusky River at Tiffin, the increase being especially noted in the chlorides and incrusting constituents. This increase in hardness and total solids is such as to make the water a very undesirable one for steam purposes. Without further information than we now

possess of the character of the well water of the public supply and the river water after such a prolonged period of drought as the present, it is difficult to discuss the question of whether river water is being added to the supply, but the results are such as might be expected with the addition of some river water to the public supply, although the supply at this time of sampling was a usable one, but undesirable on account of mineral pollution.

WATER SUPPLY OF UHRICHSVILLE.

See Dennison.

WATER SUPPLY OF UPPER SANDDUSKY.

See Report on Periodical Examinations of Certain Public Water Supplies.

WATER SUPPLY OF VAN WERT.

The supply is from several deep wells. See Report for 1898, page 487. Examination was made by request in reference to the change in iron. No portion was received from which bacterial examinations could properly be made. The results were as follows in parts per million.

	No. 3664 From well.	No. 3665. From service.
Iron .....	.5	2.6
Sediment	trace	distinct
Oxygen required .....	.80	1.30
Nitrogen as nitrites.....	.004	trace
Nitrogen as nitrates.....	none	none
Total solids	1597.	1612.
Loss on ignition.....	327.	330.

WATER SUPPLY OF VERMILLION.

See Report on an Investigation of the Efficiency of Filtration in Public Water Supplies.

WATER SUPPLY OF WARREN.

See Report on an Investigation of the Efficiency of Filtration in Public Water Supplies.

WATER SUPPLY OF WASHINGTON C. H.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4147	Nov. 7	trace	very sl	very sl	none	.016	.002	.006	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4147	.96	9.0	329	40	.5	540	167	30	no

The supply is derived from a series of wells. See Report for 1901, page 462. On account of the presence of typhoid fever, analysis of a sample of the public supply was requested by the local authorities.

No. 4147. City water works. This sample shows indication of the dry weather, for a comparison of these findings with those obtained from a sample (No. 2,942) collected in August, 1903, reveals a lessened amount in certain chemical findings indicative of traces of organic matter, while the mineral findings are slightly higher. The analysis shows a hard water with some iron, but free from organic pollution and suitable for use.

WATER SUPPLY OF WAYNESBURG.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3709	June 6 ...	10	20	very sl	ft earthy	.022	.006	none	2.0
3710	June 6....	trace	none	none	none	.024	.022	.002	6.0

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3709	.40	4.2	23	none	.8	98	45	375	no
3710	.80	10.2	43	43	.....	209	83	47	no

The supply is impounded from two springs. See Report for 1899, page 706. Samples were requested for analysis to ascertain the character of the water of the public supply.

No. 3,709. Hillside spring from which supply is obtained. The sample was taken from a hydrant. A little iron is present in this water and causes it to appear slightly turbid, but it is not a matter of serious moment. The analysis shows a very soft water for Ohio, and one of such organic purity as to be very desirable for a public supply. It would be classed as one of the good public supplies of the state.

No. 3,710. "No. 3 Hillside Spring." This spring has been looked upon by some as a source of additional supply. The analysis shows by the increase of chlorides and nitrates that this water receives much more influence from some sewage source than does the preceding spring, although just at present the pollution is receiving proper purification. This water is considerably harder than the preceding one, and also contains material that will form a scale in boilers when the water is used for steam purposes.

WATER SUPPLY OF WEST ALEXANDRIA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3803	July 4.....	25	25	distinct	none	.058	.600	.001	none
3804	July 4.....	20	15	slight	none	.052	.580	none	none
3805	July 4.....	20	15	slight	none	.038	.570	.008	none
3806	July 4.....	20	15	very sl	none	.044	.560	.006	none
3807	July 4.....	20	15	very sl	none	.048	.550	.002	none
3808	July 4.....	20	15	slight	none	.046	.556	.022	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3803	1.82	8.6	385	none	3.0	392	162	.....	.....
3804	1.38	9.1	385	none	1.3	379	162	.....	.....
3805	1.30	9.1	385	none	1.3	377	137	.....	.....
3806	1.28	9.1	385	.....	1.3	375	.....	.....	.....
3807	1.22	9.1	385	.....	.....	.....	.....	.....	.....
3808	1.41	9.1	385	none	.....	.....	.....	500	not in 50cc

The supply is obtained from deep wells. On account of complaints the local board of health requested an examination of samples from various places in the village. No. 3,804 was taken at the water works while the other samples came from various hydrants.

The water of the public supply is a deep ground water of good quality as regards freedom from organic pollution. It is not as hard as the alkalinity findings would indicate, for alkaline earths are present and the materials to form a hard scale in boilers are wanting. The one objection to the water is the presence of some iron—not enough to make the water seriously objectionable, but sufficient to make the water appear cloudy and

give a precipitate. From the standpoint of health the public supply is a much safer water for domestic use than that from any of the wells from which samples were received.

WATER SUPPLY OF WOODSFIELD.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3579	Mar. 27 ..	30 off color	68	very sl	veg	.116	.008	trace	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Unfiltered. Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3579	2.77	3.1	19	25	1.0	94	30	1700	no

The supply is derived by impounding the run off of Whittenbrook Run. See Report for 1901, page 75.

A sample was requested for analysis in order to ascertain the quality of the public water supply.

The sample was taken the next day after a heavy rain, therefore it would indicate the character of the water under the influence of much surface washings. The results found speak very favorably for the watershed drained. The water is naturally quite roily under such rain influences, but not extremely so, and furthermore, there is but little matter in suspension and is of rather a fine nature. The findings for albuminoid ammonia and oxygen required show much less organic matter than one would expect

under these conditions, and these with other findings show an absence of sewage pollution. The number of bacteria is high, but not high for rain influences, and together with the absence of intestinal bacteria makes a favorable showing. The water is soft. With the suspended soil included the determination for iron was only 1 part per million; and with the clearer water would be less.

Although the water at this time was displeasing in appearance, the analysis shows a usable water, and one that should under more favorable conditions be very acceptable for a supply from a surface source.

A REPORT ON PERIODICAL EXAMINATIONS OF CERTAIN PUBLIC WATER SUPPLIES.

WATER SUPPLY OF AKRON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3605	April 26	..	..	slight	ft. earth	.192	.022	.012	trace
3690	May 31...	38	20	slight	earth	.190	.036	.010	trace
3759	June 27...	40	15	very sl	3 veg	.280	.026	.002	none
3819	July 12...	40	10	very sl	3 veg	.278	.144	.030	none
3820	July 12...	40	10	very sl	veg'tive	.258	.032	.006	none
3821	July 12...	40	10	very sl	veg'tive	.258	.032	.006	none
	Average	40	13	.....	.....	.240	.052	.010	

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3605	4.14	.....	.....	.....	.....	.....	.....	2300	in lcc
3690	5.20	208.8	120	110	.9	575	125	400	no
3759	5.70	161.4	132	32	.8	498	88	600	no
3819	5.84	148.0	138	45	.6	454	117	650	in lcc.
3820	5.72	146.8	139	47	.3	453	122	1700	in lcc
3821	5.99	148.2	139	43	.4	455	122	1300	in lcc
Ave.	5.43	162.6	134	55	.6	487	115	1158	

For a full description of the water supply of Akron see the Sixteenth Annual Report of the Ohio State Board of Health, page 130.

The supply is derived chiefly from Summit Lake with more or less water from a series of drilled wells. In addition to the chance pollution of

the rural population on the small drainage area of this lake, there may be pollution from two summer resorts, and the industrial plants (including a rubber reclaiming plant, a salt works, and a pork packing establishment) located near the lake.

The samples were taken from various hydrants and the pumping well of the water works company.

The analyses indicate the water is mainly from Summit Lake and contains considerable vegetative organic matter with traces of sewage influence.

This water at times is displeasing in appearance, has an unpleasant taste and an objectionable odor, and as these are defects readily apparent to the consumer they make it a very undesirable water for a public supply and one that will always be open to severe complaint until remedied.

A comparison of the chemical findings of these samples with those examined by Dr. Bleile in June, 1901, shows the water is much the same now, considered in reference to its organic pollution, as it was four years ago although the number of bacteria has increased somewhat and intestinal bacteria were present in one cubic centimeter portions of four of the samples. In two of the samples colon bacilli were not found when a 50 cc. portion was used for the test. There has been a great increase in the chlorides, due evidently not to a marked sewage pollution, but rather to the entrance of some sodium chloride in the form of common salt. The chlorine determinations averaged 162 parts per million as against 11 parts in 1901. The present samples also indicate the water is a little harder than formerly.

As shown above, the tendency of this water seems to be toward a slightly greater organic pollution, an increase in salt, and a greater hardness. These are all undesirable changes and make the water less desirable for a public supply. The presence of intestinal bacteria in part of the samples shows that this water is on the suspicious order at times, and although the pollution is not such as to cause severe criticism yet if it continues to increase may reach a state where preventive measures will be necessary in order to avoid the presence of preventable disease.

WATER SUPPLY OF ASHTABULA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3546	March 1 .	25	500	consid	earthy	.394	.126	trace	none
3614	May 4....	....	....	....	....	....	....	trace	none
3627	May 5....	....	....	....	....	....	....	.004	....
3628	May 6....	....	....	....	....	....	....	none	....
3630	May 6....	15	10	very sl	earthy	.076	.008	none	2.0
3657	May 23...	15	15	very sl	faint	.110	.010	trace	trace
3758	June 27. .	20	100	very sl	2 oily	.110	.008	none	trace
3850	July 25...	25	30	very sl	earthy	.088	.008	.002	trace
4145	Nov. 2. . .	10	22	very sl	none	.056	trace	trace	none
4160	Nov. 28 . .	25	240	slight	earthy	.094	.008	.004	none
4193	Jan. 9*...	25	25	slight	earthy	.104	.018	trace	none
	Average..	20	118	.....	.....	.129	.023	.001	.2

*Jan. 9, 1905.

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3546	9.51	4.0	38	.....	.....	248	.....	65000	in 50cc
3614	2.20	.....	106	.....	.....	.....	.....	275	no
3627	3.72	10.0	.....	.....	.....	.....	.....	190	no
3628	3.08	9.6	.....	.....	.....	.....	.....	160	no
3630	1.60	10.0	109	.....	.....	155	.....	75	no
3657	2.05	9.0	109	none	.6	160	60	1100	no
3758	2.12	9.2	105	none	1.2	190	45	3500	in lee
3850	.85	9.8	86	none	.8	177	65	2100	no
4145	1.67	7.7	91	8	.9	188	44	475	no
4160	2.09	7.4	87	22	1.8	289	130	210	in 50cc
4193	1.74	8.2	87	none	.....	163	.....	1300	in lee
Aver.	2.78	8.5	91	5	1.1	196	69	6762	

This supply is derived from Lake Erie without treatment other than slight sedimentation in reservoir or standpipe. See Thirteenth Annual

Report of Ohio State Board of Health, 1898, page 546, for description of water works. See Report on Investigation of Lake Erie Water Supplies, Sixteenth Annual Report, 1901, pages 391-394, and 402. See Report on Investigation of Typhoid Fever at Ashtabula, elsewhere in this volume. The studies during 1901 showed the hydrant water was but slightly improved over that from the intake, and part of the time is derived directly from the intake. It was, furthermore, shown that while the water was usable much of the time, there were other times when pollution did occur. (Page 402, Report for 1901.)

The following quotations are taken from pages 402 and 408 of the 1901 report:

"It would seem, however, from the location of the intake in connection with the location of the point where the river empties its contents, bearing the sewage of the city, that more serious pollution must at times occur with adverse currents." And again, "At Ashtabula it is only a question of time or direction of currents until serious pollution will take place if raw water from the present intake continues to be used and the city sewage emptied into the river."

The epidemic of typhoid fever at Ashtabula in April-May, 1904, with some 150 cases and 15 deaths, shows how well written was the prediction.

A glance at the 1904 analyses reveals a wide fluctuation in quality of the public supply on the different dates showing how variable that water is. Intestinal bacteria were present in 4 of the 11 samples.

The present samples bear out the conclusion of former studies, viz.: the Ashtabula water is to be classed as usable more or less of the time, but its safety depends on the direction in which the currents bear the sewage pollution. Under adverse conditions of currents and pollution Ashtabula may be visited at any time with another outbreak of a water borne and preventable disease. There has been some agitation in regard to an improved water supply for Ashtabula, and the citizens, the civil authorities, and the water company should unite in securing one without further unnecessary delay and possible loss of life.

WATER SUPPLY OF COLUMBUS.

BACTERIOLOGICAL EXAMINATIONS OF COLUMBUS WATER. FROM FAUCET
IN THE STATE HOUSE.

Sample number.	Day of collection.	Hour.	Appearance.	No. of bacteria.	Colon present.	Remarks.
3428	Jan. 12	12:15 p.m.	Roily	600	in 50cc	Chemical.
3430	Jan. 13	4:00 p.m.	Clear	750	in lcc	
3431	Jan. 14	4:30 p.m.	Nearly clear	850	in 50cc	
3432	Jan. 15	10:30 a.m.	Roily	1100	in lcc	Chemical
3440	Jan. 16	1:30 p.m.	Hazy	900	no	
a 3438	Jan. 16	7:45 a.m.	Hazy	2300	in 50cc	Chemical.
b 3439	Jan. 15	7:00 p.m.	Hazy	700	no	Chemical.
3441	Jan. 15	5:00 p.m.	Hazy	1850	in lcc	
c 3442	Jan. 18	11:00 a.m.	Hazy	2400	in 50cc	Chemical.
3443	Jan. 18	3:30 p.m.	Hazy	1200	no	
3448	Jan. 20	5:00 p.m.	Hazy	1350	in lcc	
3449	Jan. 21	10:30 a.m.	Roily	30000	in 50cc	
3454	Jan. 22	11:30 a.m.	Roily	71000	in lcc	Chemical.
3455	Jan. 23	10:45 a.m.	Roily	13600	in lcc	
3456	Jan. 25	9:00 a.m.	Hazy	25000	in lcc	
3459	Jan. 25	4:30 p.m.	Hazy	18000	in lcc	
3460	Jan. 26	3:00 p.m.	Hazy	16500	in lcc	Chemical.
3461	Jan. 27	4:30 p.m.	Hazy	15200	no	
3462	Jan. 28	11:00 a.m.	Hazy	11400	in lcc	
3473	Jan. 29	10:00 a.m.	Hazy	2400	no	
3474	Jan. 30	2:30 p.m.	Hazy	350	no	
b 3475	Feb. 1	12:45 p.m.	Nearly clear	225	no	Chemical.
d 3477	Feb. 1	.....	Clear.	80	no	
3478	Feb. 1	3:30 p.m.	Nearly clear	1200	in lcc	
3479	Feb. 2	8:00 a.m.	Nearly clear	800	in 50cc	Chemical.
3482	Feb. 3	1:30 p.m.	Nearly clear	1900	in lcc	
b 3483	Feb. 4	7:45 a.m.	Nearly clear	650	in lcc	Chemical
3491	Feb. 4	3:30 p.m.	Nearly clear	1000	in 50 cc	
b 3492	Feb. 5	7:30 a.m.	Nearly clear	850	in 50cc	Chemical.
3493	Feb. 5	4:00 p.m.	Hazy	1600	no	
3494	Feb. 6	2:00 p.m.	Hazy	375	in 50cc	
3501	Feb. 8	3:00 p.m.	Hazy	3800	in lcc	Chemical.
3503	Feb. 9	4:00 p.m.	Hazy	3000	no	
3504	Feb. 10	5:00 p.m.	Hazy	2900	in lcc	
3508	Feb. 11	5:00 p.m.	Hazy	2300	in lcc	
3510	Feb. 12	12:30 p.m.	Hazy	325	in 50cc	Chemical.
3516	Feb. 13	10:15 a.m.	Hazy	5500	in lcc	
3517	Feb. 16	2:00 p.m.	Hazy	3500	in 50cc	
3524	Feb. 17	11:00 a.m.	Hazy	2700	in lcc	Chemical.
3528	Feb. 23	3:00 p.m.	Hazy	4700	in 50cc	
3529	Feb. 24	1:00 p.m.	Muddy	4800	in lcc	Chemical.
3531	Feb. 25	3:30 p.m.	Muddy	30200	in 50cc	
3534	Feb. 26	4:15 p.m.	Nearly clear	62000	in 50cc	

- a. West Side water from 235 Marshall Ave.
b. East Side water from 1137 Oak Street.
c. West Side water from 715 North High Street.
d. East Side water at pumping station.

WATER SUPPLY OF COLUMBUS—Continued.

Sample number.	Day of collection.	Hour.	Appearance.	No. of bacteria.	Colon present.	Remarks.
3535	Feb. 27	11:00 a.m.	Nearly clear	28000	in lcc	Chemical
3536	Feb. 28	10:15 a.m.	Muddy	108000	in 50cc	
3539	Feb. 29	10:00 a.m.	Muddy	37000	in lcc	
3547	March 2	3:00 p.m.	Nearly clear	3000	in 50cc	
3548	March 3	3:00 p.m.	Cloudy	1900	no	
3549	March 4	4:00 p.m.	Cloudy	8500	no	
3550	March 5	2:00 p.m.	Roily	6500	no	
3551	March 7	1:45 p.m.	Nearly clear	1600	no	
3552	March 8	1:45 p.m.	Nearly clear	475	no	
3554	March 9	2:00 p.m.	Clear	1300	in 50cc	
3555	March 10	4:30 p.m.	Clear	1100	in 50cc	Chemical.
3558	March 11	3:00 p.m.	Clear	1300	no	
3559	March 12	8:00 a.m.	Roily	2100	in 50cc	
3560	March 13	10:30 a.m.	Clear	1200	no	
3561	March 14	2:45 p.m.	Nearly clear	1500	no	
3563	March 15	4:15 p.m.	Nearly clear	1200	no	
3564	March 16	11:15 a.m.	Cloudy	800	no	
3566	March 17	4:15 p.m.	Cloudy	700	no	
3567	March 18	3:10 p.m.	Nearly clear	1400	no	
3568	March 19	11:00 a.m.	Muddy	2200	no	Chemical.
3569	March 20	11:00 a.m.	Muddy	3400	in lcc	
3570	March 21	11:15 a.m.	Muddy		in lcc	
3571	March 22	10:15 a.m.	Muddy	2100	no	
3573	March 23	11:00 a.m.	Muddy	4400	in lcc	
3578	March 26	9:30 a.m.	Muddy	1200	in lcc	
3580	March 28	4:30 p.m.	Cloudy	3800	no	
3582	March 29	1:30 p.m.	Cloudy	3000	no	
3583	April 1	9:15 a.m.	Cloudy	1500	in lcc	
3588	April 5	4:00 p.m.	Nearly clear	600	in lcc	Chemical.
3594	April 9	5:00 p.m.	Nearly clear	300	in lcc	
3596	April 12	3:00 p.m.	Nearly clear	200	in 50cc	
3597	April 14	3:00 p.m.	Nearly clear	500	in 50cc	
3600	April 15	3:00 p.m.	Nearly clear	900	in lcc	
3611	May 4	10:00 a.m.	Nearly clear	850	in lcc	
3632	May 9	3:00 p.m.	Hazy	400	in lcc	
3633	May 10	10:00 a.m.	Hazy	275	in lcc	
3644	May 11	4:00 p.m.	Hazy	400	no	
3654	May 17	4:30 p.m.	Hazy	220	no	Chemical.
3695	June 3	11:30 a.m.	Cloudy	150	no	
3708	June 7	11:30 a.m.	Cloudy	250	no	
3712	June 9	10:00 a.m.	Cloudy	600	no	
3722	June 10	2:00 p.m.	Cloudy	.....	no
3729	June 11	11:00 a.m.	Cloudy	500	no	
3732	June 14	4:30 p.m.	Cloudy	130	no	
3733	June 15	2:00 p.m.	Cloudy	110	no	
3734	June 17	2:00 p.m.	Cloudy	700	in lcc	
3741	June 21	3:00 p.m.	Cloudy	625	in lcc	
3447	June 22	10:00 a.m.	Hazy	210	no	
3757	June 24	2:30 p.m.	Hazy	300	no	
3848	July 21	3:00 p.m.	Cloudy	300	in lcc	
3852	July 25	3:15 p.m.	Cloudy	200	in lcc	
3870	August 13	10:00 a.m.	Hazy	140	in lcc	

WATER SUPPLY OF COLUMBUS—Concluded.

Sample number.	Day of collection.	Hour.	Appearance.	No. of bacteria.	Colon present.	Remarks.
4097	October 20	3:00 p.m.	Roily	400	in lee	
4155	Nov. 18	3:00 p.m.	Clear	275	no	
4158	Nov. 25	2:00 p.m.	Clear	240	no	
4183	Dec. 27	3:00 p.m.	Cloudy	5000	in lee	
4184	Dec. 30	1:30 p.m.	Very cloudy	40000	in lee	
4187	Dec. 31	8:45 a.m.	Muddy	6000	in lee	Chemical.

From the preceding table there is obtained the following data concerning the bacterial character of the Columbus water supply arranged by months.

MONTHLY BACTERIAL DATA, COLUMBUS WATER SUPPLY.

Month.	No. of Samples.	Bacteria per cc.		Average.
		Maximum.	Minimum.	
January.....	21	71000	350	10355
February.....	25	108000	80	12296
March.....	24	8500	475	2377
April.....	6	1500	200	667
May.....	5	850	220	429
June.....	11	700	110	358
July.....	2	300	200	.....
August.....	1	140	140	.....
October.....	1	400	400	.....
November.....	2	275	240	.....
December.....	3	40000	5000	.....

Daily average for 101 examinations, 6483 bacteria per cc.

CHEMICAL EXAMINATIONS OF COLUMBUS WATER. FROM FAUCET
IN STATE HOUSE.

PARTS PER MILLION.

Sample number.	Source of Sample.	Date collected.	Color.	Turbidity.	Sediment.	Odor.
3428	O. S. B. of H. Lab'y Tap	Jan. 12	30	10	V. S.	Ft. earthy
3432	O. S. B. of H. Lab'y Tap	Jan. 15	30	10	trace	3 vegetative
3454	O. S. B. of H. Lab'y Tap	Jan. 22	35	98	distinct	Earthy
3460	O. S. B. of H. Lab'y Tap	Jan. 26	15	15	trace	None
3479	O. S. B. of H. Lab'y Tap	Feb. 2	15	10	trace	None
3501	O. S. B. of H. Lab'y Tap	Feb. 8	.....	100	slight	Ft. oily
3510	O. S. B. of H. Lab'y Tap	Feb. 12	15	8	V. S.	Earthy
3524	O. S. B. of H. Lab'y Tab	Feb. 17	40	20	slight	Earthy
3529	O. S. B. of H. Lab'y Tap	Feb. 24	30	60	slight	Slight oily
3548	O. S. B. of H. Lab'y Tap	Mar. 3	38	120	slight	Earth & veg
3559	O. S. B. of H. Lab'y Tap	Mar. 12	28	30	V. S.	Earthy
3597	O. S. B. of H. Lab'y Tap	Apr. 14	9	10	trace	Earthy
3712	O. S. B. of H. Lab'y Tap	June 9	25	18	slight	Ft. earthy
4187	O. S. B. of H. Lab'y Tap	Dec. 31	high off	60	slight	Woody and earthy
Average .....		.....	26	41		

Sample number.	Nitrogen as				Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Total solids.
	Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.					
3428	.140	.108	.008	2.0	6.29	8.5	278	116	598
3432	.178	.132	.016	3.6	4.14	9.9	293	.....	622
3454	.176	.022	.004	2.0	2.91	5.6	230	86	472
3460	.050	.016	.014	3.0	1.96	8.8	260	128	550
3479	.150	.090	.030	4.0	3.00	12.0	256	.....	618
3501	.178	.058	.014	2.0	2.83	9.1	236	.....	584
3510	.086	.076	.014	2.0	1.50	12.9	280	.....	.....
3524	.118	.094	.030	2.0	3.52	13.9	245	.....	620
3529	.200	.062	.008	2.0	4.41	8.9	207	.....	586
3548	.138	.006	.007	1.0	2.77	11.5	250	.....	550
3559	.154	.056	.010	2.0	2.28	13.5	242	.....	572
3597	.060	.042	.030	2.0	1.73	12.0	269	155	616
3712	.202	.004	tr	2.0	5.49	8.8	246	190	602
4187	.232	.022	.008	2.0	6.45	8.7	187	110	560
Aver..	.147	.056	.014	2.3	3.52	10.3	248	.....	581

COLUMBUS, WEST SIDE WATERS.

Sample number.	Source of Sample.	Date collected.	Color.	Turbidity.	Sediment.	Odor.
3438	235 Marshall Ave.	Jan. 16	30	V. S.	trace	none
3442	715 North High St.	Jan 18	....	.....	.....	.....
3513	Jacob's Conduit.	Feb. 12	10	10	slight	ft. H ₂ S
3514	Old Conduit.	Feb. 12	0	trace	trace	none
3515	West Side Basin.	Feb. 12	20	10	slight	earthy
3433	Scioto River above Dry Run.	Jan. 15	43	10	trace	3 vegetative.
3434	Sewer into Dry Run. .	Jan. 15	40	90	consid	4 sewage
3435	Scioto river below Dry Run.	Jan. 15	30	12	trace	veg. & ft. m't
3485	Scioto R. above G. I. School.	Feb. 3	50	20	slight	earthy
3486	Scioto R. below G. I. School.	Feb. 3	50	18	V. S.	ethy & veg
3487	Scioto R. below Dublin	Feb. 3	50	20	V. S.	earthy
3488	Scioto R. at Corbins D.	Feb. 3	50	15	V. S.	earthy
3489	Scioto R. at Fishingers Dam.	Feb. 3	50	20	V. S.	earthy
3495	Scioto R. below Dry R'	Feb. 6	40	20	slight	vegetative
3497	Scioto R. above G. I. School.	Feb. 6	45	25	slight	vegetative
3498	Scioto below G. I. Sch..	Feb. 6	45	35	consid	oily.
3499	Scioto R. at Dublin.	Feb. 6	35	20	V. S.	vegetative
3500	Scioto R. at intake.	Feb. 6	40	10	slight	vegetative
3511	Dry Run.	Feb. 12	m'ky off	700	consid	ft. musty
3512	Scioto R. at intake.	Feb. 12	m'ky off	300	consid	earthy

COLUMBUS, WEST SIDE WATERS—

Concluded.

Sample number.	Nitrogen as				Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Total solids.	No. of bacteria.	Colon.
	Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.							
3438	.168	.166	.022	1.6	4.14	7.9	291	111	658	2300	yes
3442	.....	.....	.....	2.0	.....	.....	.....	.....	.....	2400	yes
3513	.094	.110	.004	2.0	1.43	8.2	269	200	646	650	yes
3514	.084	.128	.002	2.0	1.64	9.1	274	174	464	475	yes
3515	.132	.358	.002	tr	1.60	36.5	357	174	790	450	yes
3433	.234	.210	.014	off	3.8	5.88	7.1	288	.....	567	2350
3434	5.100	7.000	.040	1.0	31.88	392.0	312	.....	1243	590000	yes
3435	.306	.258	.026	3.8	6.22	7.2	288	.....	589	1800	yes
3485	.438	.282	.050	6.2	12.76	3.1	149	190	538	.....	.....
3486	.472	.334	.050	6.2	11.87	3.4	147	204	534	.....	.....
3487	.418	.328	.040	4.0	11.39	1.7	138	191	506	.....	.....
3488	.360	.288	.060	6.2	10.89	2.2	146	191	528	.....	.....
3489	.350	.316	.050	6.2	10.80	2.7	137	144	494	.....	.....
3495	.408	.738	.100	6.0	7.96	3.3	164	.....	.....	2700	yes
3497	.440	.212	.070	5.6	5.37	2.3	137	.....	.....	12000	yes
3498	.656	.420	.110	6.0	13.66	2.7	152	.....	.....	31000	yes
3499	.416	.180	.116	5.2	7.94	1.8	170	.....	.....	13500	yes
3500	.382	.154	.100	6.0	8.68	2.9	155	.....	.....	4350	yes
3511	.617	.697	.016	6.0	12.00	3.7	142	47	314	97000	yes
3512	.447	.170	.004	6.0	10.28	.5	94	60	310	112000	yes

COLUMBUS, EAST SIDE WATERS.

Sample number.	Source of sample.	Date collected.	Color.	Turbidity.	Sediment.	Odor.
3439	1137 Oak street.....	Jan. 15	25	V. S.	trace	none
3475	1137 Oak street.....	Feb. 1	10	20	trace	none
3476	Alum Creek at intake.....	Feb. 1	30	20	trace	none
3477	East Side Station.....	Feb. 1	..	.....	.....	.....
3483	1137 Oak street.....	Feb. 4	10	10	very sl	gas
3492	1137 Oak street.....	Feb. 5	10	20	slight	oily

COLUMBUS, EAST SIDE WATERS—

Concluded.

Sample number.	Nitrogen as				Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Total solids.	No. of bacteria.	Colon.
	Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.							
3439	.054	.222	.004	trace	1.08	6.0	412	124	659	700	no
3475	.092	.326	.004	none	.80	5.3	251	124	724	225	no
3476	.226	.088	.010	2.0	6.85	3.4	156	90	384	1900	yes
3477	.....	....	none	none	.40	5.5	....	....	....	80	no
3483	.072	.242	.006	trace	1.11	4.1	388	....	656	650	yes
3492	.050	.192	.003	trace	.89	4.3	397	....	666	850	yes

For a full description of the Columbus supply see Annual Report of the State Board of Health for 1898, page 578. Water is derived from various driven wells, filter basins, filter galleries, and from the Scioto River and Alum Creek. During the latter portion of the year but few samples were taken as daily examinations of the water were then being made in the local laboratory of the Department of Health of the City of Columbus.

The chemical results, as well as the bacteriological findings above given, show how the public water supply of this city is subject to sewage pollution and merely bear out the conclusion from former investigations, viz., that the water supply of Columbus is open to serious pollution.

Predictions had frequently been made that the city would sooner or later be visited by a typhoid calamity and the lamentable epidemic at the beginning of the year has verified all predictions. Steps were taken to secure an improved supply by mechanical filtration and softening. (See report elsewhere.) Special examinations were made at the request of the local board of health at the time of the epidemic. The somewhat lengthy reports are omitted here and attention is called only to certain points.

Sample No. 3434 shows that the sewage entering Dry Run from the State Hospital was nearly as strong as samples of Columbus sewage taken at Moler Street and examined a few weeks previously. This sewage passed down Dry Run to empty into the Scioto River a short distance above the intake for the pumping station.

The Scioto River samples also show serious pollution from the Girls' Industrial School, and how at this season of the year the water was coming down under the ice for many miles practically unchanged and therefore without any purification.

WATER SUPPLY OF IRONTON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3585	Mar. 31	30 off	380	consid	earthy	.340	.030	.007	trace
3602	April 25	25	68	slight	sl earth	.118	.020	trace	none
3689	May 26	35 off	206	distinct	earthy	.216	.016	.006	trace
3742	June 20	30	123	distinct	faint	.110	.012	trace	none
3854	July 25	30	150	distinct	earthy	.140	.010	trace	trace
4111	October 25 . . .	20	trace	very sl	faint	.116	.006	trace	none
4162	Nov. 28	25	7	trace	earthy	.090	.064	.004	none
4188	Dec. 29	off	300	decided	earthy	.228	.146	.002	none
	Average	28	154	.....	.....	.170	.038	.003	

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bactéria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3585	5.00	5.0	17	49	2.4 off	420	84	2900	in 1cc.
3602	1.26	12.0	30	53	1.2	174	60	750	in 50cc.
3689	3.40	9.5	27	9	1.1	279	50	32000	in 1cc.
3742	3.14	15.3	51	29	1.5	195	50	350	in 50cc.
3854	3.15	16.2	38	19	2.7	224	71	1200	in 1cc.
4111	3.35	37.0	62	44	.2	234	79	500	in 1cc.
4162	3.15	33.9	50	70	.6	204	72	210	in 50cc.
4188	4.00	32.0	46	40	3.0	439	68	550	in 1cc.
Aver.	3.31	20.1	40	39	1.6	271	67	4807	

This supply is pumped directly from the Ohio River and accorded no treatment. For a full description with opportunities for sewage pollution see Thirteenth Annual Report of Ohio State Board of Health, page 514.

A series of examinations was made in 1901 of samples from this supply and the high turbidities and large amounts of suspended matter noted at the time. In the present series the samples were obtained in lower

stages of the river and the results for the determinations named are correspondingly less.

It will be noticed that there is considerable variation in the present samples showing that the quality of the Ironton water is subject to much fluctuation. It contains considerable organic matter most of the time, and while the number of bacteria ranged from 210 to 32,000 with an average of 4,800 per cc., yet intestinal bacteria were found in each sample on using 1 or 50 cc. for the test. This shows sewage influence and although not grossly polluted, yet indicates the water is unsafe more or less of the time.

The suspended solids averaged but 103 parts per million in the present series as compared with 317 in the 1901 samples, but this is very objectionable in a water used as a public supply for a city. The determination for each sample in parts per million was as follows :

No. of Sample.	Suspended Solids.
3585	334
3602	43
3689	174
3742	39
3854	50
4111	undetermined trace
4162	" "
4188	181
	<hr/>
Average,	103

There is one good character this water possesses that should be mentioned. It is a soft water, much softer than most of the public supplies of the state.

With a water that is suspicious on account of its sewage pollution, that also carries more or less vegetative organic matter and manufacturing waste, and that is also open to severe criticism at times on account of the unsightly appearance due to its suspended matter, the authorities of Ironton are justified in putting forth strenuous efforts to secure an improved public water supply.

WATER SUPPLY OF MARIETTA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3584	March 31...	20 off	85	slight	earthy	.156	.058	.007	trace
3604	April 28 ...	30	700	consid	oily	.262	.016	.006off	none
3655	May 23	45	150	distinct	earthy	.170	.010	.002	trace
3739	June 20	28	10	slight	earthy	.126	.026	trace	trace
3853	July 26	35	20	slight	earthy	.142	.018	trace	trace
4103	Oct. 24	30	20	trace	earthy	.114	.060	trace	none
4159	Nov. 28	30	10	trace	earthy	.100	.132	.006	none
4185	Dec. 29	off	30	slight	earthy	.174	.460	.010	none
	Average....	31	128	.....	.....	.155	.097	.004	

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on Ignition.	No. per cc.	Colon present.
3584	3.10	5.7	17	43	2.0	124	.....	950	in 50cc.
3604	3.42	16.5	33	25	15.0	1060	124	1600	in lcc.
3655	4.85	8.8	19	9	1.2	194	56	800	in 50cc
3739	3.19	16.2	40	39	.8	160	57	o'r sp'd	no
3853	3.35	17.8	33	24	.4	168	68	550	in lcc
4103	3.04	35.2	32	58	.4	210	31	550	in lcc.
4159	4.75	41.2	37	68	1.6	227	68	375	in lcc.
4185	3.41	55.1	32	95	1.2	351	80	7900	in lcc.
Aver.	3.64	24.6	30	45	2.8	312	69	1818	

The supply is derived from the Ohio River, pumped to two steel tanks on a hill back of the city, and delivered by gravity. See Thirteenth Annual Report Ohio State Board of Health, 1898, page 515.

A series of analyses of the water of the public supply was made in 1899, another in 1901, and a third during 1904. For the former analyses see pages 274 and 338, respectively, of the Fourteenth and Sixteenth An-

nual Reports. The previous examinations had shown the water was usable at times, unsafe at other times on account of the sewage pollution, and often quite unsatisfactory because of its unsightly appearance and the suspended soil and organic matter it carried. The samples of the present year bear out the same facts, but as colon bacilli were found to be present in all except sample No. 3,739 it would appear the sewage pollution was more in evidence now and consequently the water that much the more suspicious.

Most of the samples during 1904 were taken under low water conditions and did not show the suspended solids of previous samples, although No. 3,604 gives the highest finding yet obtained at Marietta. The suspended solids in parts per million were as follows:

No. 3,584, 6 parts; No. 3,604, 918 parts; No. 3,655, 82 parts; No. 4,185, 20 parts; and in the other samples undetermined traces.

The authorities at Marietta have very wisely taken steps to secure an improved water supply by mechanical filtration, as shown elsewhere in this volume, and a filtered water will be available early in 1905.

(See Reports on Proposed Water Supplies.)

WATER SUPPLY OF PAINESVILLE.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3595	April 11....	12	10	trace	none	.056	.004	trace	trace
3601	April 25....	15	10	trace	v'y ft.	.090	.006	trace	none
3656	May 23	none	none	none	none	.044	.006	none	trace
3743	June 20	15	trace	v'y sl	faint	.036	.002	none	none
3851	July 25	20	none	trace	none	.070	.020	none	trace
4105	Oct. 24....	tr	none	none	none	.056	.008	none	none
4161	Nov. 28	10	none	none	ft e'th	.038	.006	trace	none
4189	Dec. 29	off	slight	v'y sl	earthy	.094	.066	.004	none
	Average....	10	.....	.....	.....	.060	.015	.001	

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3595	1.29	8.0	102	18	.....	182	.....	85	no
3601	.18	7.5	110	none	.6	166	63	39	no
3656	1.90	11.5	120	26	.4	183	78	180	no
3743	1.27	8.0	319	17	.5	167	37	950	no
3851	1.95	9.8	98	16	.3	177	59	60	no
4105	1.53	9.8	100	23	trace	177	57	10	no
4161	1.25	9.5	94	30	.3	183	94	60	no
4189	1.39	11.8	88	28	1.0	198	43	22000	in lcc.
Aver.	1.34	9.5	129	20	.4	179	62	2923	

The supply is derived from Lake Erie by means of a natural filtration through the sand on the lake shore. The water is pumped from a series of galleries or filter boxes along the beach. See thirteenth Annual Report of Ohio State Board of Health, 1898, page 557. Several analyses of the lake water and also of the hydrant water were made in 1901. See Sixteenth Annual Report of Ohio State Board of Health, pages 394, 396 and 405. At that time it was shown that while these filter boxes were properly covered and working a good water was obtained, but when due to interference from ice (see page 406 above cited) or other means, this plan was obliged to be temporarily discontinued, then the city was compelled to use a polluted lake water through an emergency intake.

The present samples indicate a potable water most of the time, but there is also indication in the averages for free ammonia and chlorides of an increasing pollution of the lake water at the location of the Painesville intake and accordingly greater danger to the consumers when there is a defect in or interference with the filter box plan. The December hydrant sample (No. 4,189) with its increased ammonias, nitrites, chlorides, number of bacteria and the presence of colon bacilli in 1 cc. shows a sewage polluted water that is not safe to drink.

Most of the samples received were of good appearance, and in only one (No. 4,189) was there sufficient turbidity to cause the examination for suspended solids to be made and the result was 28 parts per million.

The city of Painesville should be made secure against these occasional and dangerous departures from a potable water to one that is polluted and unsafe.

WATER SUPPLY OF UPPER SANDUSKY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3603	April 26	22	90	v'y sl	faint	.158	.026	trace	m'r tr
3658	May 23	20	10	trace	faint	.136	.038	.004	trace
3740	June 20.....	20	138	slight	earthy	.228	.012	trace	none
3855	July 26.....	25	v'y sl	v'y sl	none	.096	.058	.002	none
4110	Oct. 26	20	none	none	none	.100	.006	trace	none
4166	Nov. 30.....	25	10	trace	earthy	.060	.040	.002	none
4186	Dec. 30	off	175	slight	ft oily	.486	.256	.006	4.0
Average.....		22	.....	.....	.....	.181	.062	.002	

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3603	1.67	5.0	228	160	.8	600	206	800	in lcc
3658	3.50	6.8	245	182	.3	594	123	200	in 50cc
3740	4.32	7.5	247	171	2.0	664	106	300	no
3855	1.45	9.2	221	48	.3	897	171	160	no
4110	2.69	10.8	233	240	...	800	.....	44	no
4166	2.31	9.8	243	220	.5	811	185	500	no
4186	11.13	7.4	104	136	2.8	497	117	81000	in lcc.
Aver.	3.87	8.1	217	165	1.1	695	151	11857	

For detailed information concerning the water works plant at Upper Sandusky see the Thirteenth Annual Report of Ohio State Board of Health, 1898, page 439. The supply is derived from the Sandusky River with the addition of some ground water that enters the pump well. At times the river water is passed through a "filter box" containing a bed of sand.

Samples examined in 1903 at the request of the local board of health indicated the "filter" was practically without effect at that time. The present hydrant samples fail to give indication of having been filtered, and it is quite evident the "filter box" arrangement is not effective as a filter.

A study of the analyses of the present year indicates the water is chiefly a surface water and subject to wide fluctuation in quality as well as appearance. In part of the samples the water was not so objectionable in appearance, while in the others it was unsightly. In only two of the samples (Nos. 3,740 and 4,186) was a determination of the suspended solids made and these showed 172 and 109 parts respectively.

Most of the samples gave marked evidence of the presence of organic matter and some gave indication of fresh sewage influences.

Intestinal bacteria were present in 1 cubic centimeter portions of 2 samples and in 50 cc. of a third sample. The December sample gave the evidences of surface washings and flood conditions for the season of the year.

This water is a very hard one and very undesirable for steam or manufacturing purposes.

The results show water that is in no wise acceptable, but that is objectionably hard, is displeasing in appearance, carries much organic matter and at times gives evidence of sufficient sewage pollution to class it as a suspicious water. Such a public water supply as this calls for improvement in the immediate future.

REPORT ON AN INVESTIGATION OF THE EFFICIENCY OF FILTRATION IN PUBLIC WATER SUPPLIES.

WATER SUPPLY OF BATAVIA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4038	Sept. 16	trace	none	none	faint	.116	.004	trace	none
4039	Sept. 16	29	90	slight	ft. eathy	.302	.018	.002	none
4042	Sept. 16	trace	trace	trace	faint	.116	.098	trace	none
4043	Sept. 16	trace	none	none	none	.102	.002	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4038	2.09	2.3	97	19	none	179	40	625	no
4039	3.72	2.4	116	none	1.2	217	51	1200	no
4042	2.14	2.3	100	25	none	173	49	230	no
4043	2.06	2.3	97	19	none	179	53	150	no

This supply is taken from the East Branch of Little Miami River, filtered by a mechanical filter using alum as a coagulant, and the filtered water is pumped to the reservoir on the hill. From the reservoir the village is supplied by gravity. See Report for 1900, page 547.

UNFILTERED WATER FROM EAST BRANCH.

Sample number.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Bacteria removal.
4039	Sept. 16, 1904.....	10:30 a.m.	116	none	1200	no	
4041	Sept. 16, 1904.....	11:25 a.m.	116	7	1250	no	
4046	Sept. 16, 1904.....	1:50 p.m.	113	5	x	no	
4047	Sept. 16, 1904.....	2:00 p.m.	675	no	
	Average.....	115	4	1042		

RESERVOIR.

4038	Sept. 16, 1904.....	9:15 a.m.	97	19	625	no	
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FAUCET AT CLERMONT HOTEL.

4037	Sept. 15, 1904.....	9:15 p.m.	13	130	no	
4043	Sept. 16, 1904.....	12:05 p.m.	97	19	150	no	
	Average.....	.....	....	.....	140	....	86.6%

EFFLUENT FROM FILTER AT PLANT.

Sample number.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Bacteria removal.
4040	Sept. 16, 1904.....	11:00 a.m.	....	.....	320	....	.....
4042	Sept. 16, 1904.....	11:35 a.m.	100	25	230	no	.....
4044	Sept. 16, 1904.....	1:15 p.m.	....	.....	290	....	.....
4045	Sept. 16, 1904.....	1:40 p.m.	....	.....	135	....	.....
4048	Sept. 16, 1904.....	2:15 p.m.	....	.....	60	....	.....
	Average effluent of samples.....	.....	....	.....	207	....	80.1%
	Average of all filtered samples.....	.....	98	19	242	....	76.8%

EFFICIENCY OF FILTRATION.

The agreement between the Wefugo Company and the village of Batavia was for an average of not more than 200 bacteria per cubic centimeter of the filtered water when the raw water had less than 7,000 per cc. From the analyses it is seen this figure was slightly exceeded, for the average of effluents at the plant was 207 bacteria per cc., and 242 for all filtered samples taken. Only one filtered sample fell below 100 per cc. The results indicate that the filtration at this time was not up to the standard.

Those in charge of the plant said sand worked through the filter at times, and this would indicate the possibility of a defect in the mechanism, which would account for the deficient filtration. The filter was operated at the rate of 125,000 gallons per 24 hours although only in operation about one-fourth of the time, thus actually filtering something over 30,000 gallons each day. The results indicate a sufficient amount of coagulant was in use at the time, viz., 2 grains per gallon.

CHARACTER OF THE UNFILTERED AND FILTERED WATERS.

East Branch was in one of its clearer stages and contained less organic matter than it usually does, but it could hardly be classed as a potable water without treatment.

The filtered waters were clear and of such character that they were acceptable to the consumers. The slight defect in filtration at the time of investigation was of no immediate moment to the user, for the untreated water did not show evidences of sewage pollution at that time. With sewage pollution more in evidence in the water of the stream as will be found at other times, a defective filtration would mean more of danger to the consumer.

The filter should be carefully examined and any defect in mechanism corrected.

WATER SUPPLY OF CONNEAUT.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3590*	April 7....	30	45	v'y sl	sl e'th	.142	.032	.006	none
3591	April 7....	25	30	v'y sl	v'y fte'th	.114	.018	.006	none
3593	April 7....	.....	.....	.....	.....	.....	.....	.002	m'r tr
3616*	May 4	20	30	slight	earthy	.162	.022	.003	none
3617	May 4	5	none	none	none	.060	.006	trace	none
4118	Oct. 29	trace	none	none	none	.038	.004	none	none
4125*	Oct. 29....	trace	very	v'y sl.	earthy	.058	.018	.003	trace
4126	Oct. 29 ...	trace	none	none	faint	.040	.006	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3590*	2.68	9.0	92	none	.....	152	....	950	in lcc
3591	2.83	8.5	79	7	.....	162	....	650	no
3593	2.35	....	94	.....	.....	.....	....	500	no
3616*	2.95	9.6	92	12	.....	162	....	1300	in lcc
3617	1.15	9.8	82	36	.....	126	....	20	no
4118	1.38	7.5	84	16	trace	131	50	17	no
4125*	1.49	12.3	146	86	3	371	96	200	in lcc
4126	1.36	7.5	84	26	trace	136	41	10	no

*Samples before filtration, i. e., raw lake water.

The supply is from Lake Erie, and the treatment consists of mechanical filtration using alum as the coagulant. See Report for 1898, page 550, Report for 1899, pages 78 and 92, and Report for 1900, page 64.

The sewage of the city enters Conneaut River and this stream empties into Lake Erie some 1,500 feet from the intake of the water works pumping station.

For previous investigations as to the quality of the water and the

presence of typhoid fever see Reports for 1901 and 1902, pages 403 and 163 respectively. Mechanical filters were installed in 1899 and in the subsequent period of a little over five years Conneaut has had two epidemics of typhoid fever and other typhoid troubles that have bordered on epidemics. (See references cited.) During January and April, 1904, thirty-two cases of typhoid fever were reported to the health officer of Conneaut.

These occurrences of typhoid at Conneaut are in no manner to be construed as a condemnation of the process of mechanical filtration, but they do show improper operation or defective filters.

The filters unquestionably have been in poor shape at times and have needed repairs, but these defects have lately received attention. A new engineer has recently been placed in charge of the plant, and the superintendent and the engineer are doing all they can to put the plant in such shape that it will effectively purify the water.

On account of the presence of typhoid fever in the city the local board of health requested an examination of the water in April. The following extract is from the report of the bacteriologist and chemist made at the time:

"Sample No. 3,590 represented the water from the lake at the intake; No. 3,591, the water from a hydrant; and 3,593, the water from the flume at the water works. Therefore Nos. 3,591 and 3,593 represent filtered water.

"There was a slightly different water at the intake at the time of sampling than when the water was being drawn from the lake for samples 3,591 and 3,593, but the difference is not material, provided too close a line is not drawn on the efficiency of the filtration from the present findings. The results show there was some filtration, but they also indicate the percentage of removal by the filters was much below the standard. Averaging the two filtered samples, and assuming the lake water to be practically constant in character, the percentage of efficiency was 5 per cent. judged by the oxygen required, 19 per cent. by the albuminoid ammonia, and 39 per cent. judged by the bacteria.

"Colon bacilli were not found in 50 cc. portions of the filtered water although present at the time of sampling in the lake water. Previous investigations have shown the lake water at the Conneaut intake frequently does not contain colon bacilli.

"The present hydrant samples show a usable water, but if the filtration is defective, it may not be so at all times."

The bacteriologist visited Conneaut in May and the following extract is taken from his report on the test of May 4th and 5th.

CAPACITY OF THE FILTERS.

The two filters now in use have a guaranteed average daily capacity of one million gallons of water, but the guarantee of bacterial reduction only applies when the rate of filtering does not exceed 800,000 gallons per day of twenty-four hours. The daily records show that a short time ago the pumps registered some 1,200,000 gallons daily, but there was a large "slippage." Since the pumps have been overhauled, the daily pumpage has averaged about one million gallons. It is seen the filters are being worked to their limit, and effective results could not be expected all the time, since when one filter was temporarily laid off for any reason it crowded matters.

One cause for inefficient work has been too little capacity. The contract has been let for the installation of a third filter with a capacity of 500,000 gallons net above wash water, and a guarantee to remove an average of not less than 98 per cent. of the bacteria when the raw water has over 3,000 bacteria per cubic centimeter. The contract also says the filtered water is to meet the requirements of the local and State Boards of Health. The filter to be installed is a Standard Gravity Filter made by the Pittsburg Filter Company, and its arrival was daily expected at the time of the visit to Conneaut. With this increased capacity it will be possible to run at a slower rate much of the time and maintain safety in times of emergency.

AMOUNT OF COAGULANT.

The coagulant was measured in pails that had been repeatedly weighed and the books showed that 200 pounds of alum had been used daily since March 8, 1904. This would be equivalent to approximately one and one-half grains of alum to the gallon of water. Prior to March 8 the daily amount of alum used was 200 pounds. There had been thought of reducing the amount of alum soon, but that is not an advisable procedure, for the reason that the water at the harbor is stirred up and there are a number of typhoid cases in the city that are convalescent. The discharges from these cases will continue for some time to make the sewage of Conneaut a menace to the health of the city unless there is thorough work done by the filters of the water company. The findings for alkalinity hardly indicate as much coagulant as stated above.

FILTERED WATER.

Date.	Hour.	Sample number.	Source.	Oxygen required.	Alkalinity.	Bacteria per cc.	Colon bacilli in 50 cc.
May 4	3:15 p.m.	3615	Effluent from flume	1.30	92	41	not pres.
May 4	5:15 p.m.	3617	Effluent from flume	.....	..	20	.....
May 4	6:30 p.m.	3618	Faucet at hotel	.....	89	50	not pres.
May 5	11:00 a.m.	3620	Effluent from filter No 1	1.20	91	10	not pres.
May 5	11:10 a.m.	3621	Effluent from filter No 2	1.20	91	3	not pres.
May 4	4:15 p.m.	3622	Effluent from flume	.....	....	8	.....
May 5	8:30 a.m.	3623	Faucet at Ex. office	.....	....	7	.....
May 5	9:00 a.m.	3624	Effluent from flume	.....	....	10	.....
May 5	9:10 a.m.	3625	Effluent from filter No 1	.....	....	9	.....
May 5	9:20 a.m.	3626	Effluent from filter No 2	.....	....	2	.....
Average.....				.....	....	16	

UNFILTERED WATER.

May 4	5:00 p.m.	3616	Lake at intake.	1300	Colon in 1c
May 5	10:45 a.m.	3619	Lake at intake.	3.10	93	300†	
Average.....				.....	....	800

†The count on No. 3619 was low owing to the interference by overspreading growths.

The bacterial reduction in these tests was quite satisfactory and especially so when it is remembered that the lake water on the first day had 1,300 bacteria per cc., and on the second day the count for the raw water was only 300 per cc. These low figures in the raw water necessarily lower the percentage of removal although the efficiency in this test was 98 per cent. A better way to consider the efficiency of the process in such a case is by the number of bacteria in the filtered water. The number of bacteria in the filtered water ranged from 2 to 50 with an average of 16 per cc. in ten samples.

The results show that the filters were doing effective and satisfactory work at the time of the test.

QUALITY OF THE UNFILTERED AND FILTERED WATER.

By looking at the analyses of the two lake samples it is seen that the water at the intake is polluted with sewage as well as being quite muddy, and it is essential for the welfare of the city that the filters be operated in an efficient manner.

The chemical and bacterial findings in the samples of filtered water

show that at the time of sampling (May 4-5) intestinal bacteria were not present in the hydrant water, and that the city water was a wholesome water suitable for public and domestic use. Its use would not have caused typhoid fever.

There is now in course of construction a tunnel five feet in diameter that will extend some 150 feet from shore before pipes connect it with the present suction lines to the intake. This tunnel is intended to provide opportunity for the deposition of the sand that was formerly carried into the pumps to their injury, and also to prevent the breaking of the suction lines by the ice close to shore.

The investigation indicates the company has undertaken to remedy defects in the plant and operation, and to deliver a good wholesome water to the consumers.

The present filters are capable of doing effective work, and with the additional filter installed and tested, there should, with proper operation of the plant, be no recurrence of the typhoid troubles at Conneaut due to the public water supply.

The lake water is seriously polluted at times, and with typhoid convalescents in the city and sewage entering the river, the amount of alum ought not to be reduced unless daily tests are made to show that efficient filtration is still being maintained with the reduction.

The water of the supply at the time of the investigation was wholly satisfactory in quality.

Conneaut was again visited by the bacteriologist October 28 and 29 and the following extract is taken from his report made at the time :

EXAMINATIONS OF WATERS FROM CONNEAUT.

UNFILTERED WATER FROM TUNNEL.

Sample number.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.
4119	October 29.....	9:15 a. m	.....	.....	325	.....
4122	October 29.....	10:15 a. m.	142	62	225	yes in 1cc.
4125	October 29.....	10:50 a. m.	146	86	200	yes in 50cc.
4130	October 29.....	1:50 p. m.	.....	.....	350	.....
4132	October 29.....	2:40 p. m.	150	84	390	not in 50cc.
	Average.....	.....	146	77.3	298	

FAUCETS IN THE CITY.

Sample number.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.
4115	October 28	6:30 p. m.	83	12	49	not in 50cc
4116	October 28	9:15 p. m.	85	4	26	not in 50cc
4117	October 29.....	6:15 a. m.	.....	.....	55	.....
4126	October 29.....	12:45 p. m.	84	26	10	not in 50cc
	Average of hydrant.	.....	84	14	35	

COMBINED EFFLUENTS FROM FILTERS 1, 2 AND 3.

4118	October 29.....	8:45 a. m.	84	16	17	not in 50cc.
4121	October 29.....	9:45 a. m.	.....	.....	20	.....
4123	October 29.....	10:30 a. m.	.....	.....	54	.....
4131	October 29.....	2:30 p. m.	.....	.....	26	.....
	Aver. of com. effl'ts	.....	.....	.....	29.25	

INDIVIDUAL SAMPLES OF EFFLUENT FROM FILTER NO. 3.

4120	October 29.	9:30 a. m.	.....	.....	30	.....
4124	October 29.....	10:40 a. m.	85	10	32	not in 50cc.
4129	October 29.....	1:40 p. m.	.....	.....	49	.....
4135	October 29.....	3:30 p. m.	81	15	31	not in 50cc
	Aver. for filter No 3	.....	.....	.....	35.5	

INDIVIDUAL SAMPLES OF EFFLUENT FROM FILTER NO. 1.

4127	October 29.....	1:30 p. m.	.....	.....	7	.....
4134	October 29.....	3:20 p. m.	.....	.....	12	.....
	Aver. for filter No. 1	.....	.....	.....	9.5	

INDIVIDUAL SAMPLES OF EFFLUENT FROM FILTER NO. 2.

4128	October 29.....	1:35 p. m.	.....	.....	10	.....
4133	October 29.....	3:10 p. m.	.....	.....	11	.....
	Aver. for filter No. 2	.....	.....	.....	10.5	

Average for all effluents.....	83.3	13.7	25.	.....
Average for all filtered samples.....	83.7	13.8	27.4	.....

An average of 27 bacteria per cubic centimeter for all the filtered samples with the absence of intestinal bacteria in 50 cc. of each filtered sample tested for the presence of colon bacilli, shows this plant was yielding a safe water for a public supply at the time of the investigation. The time of the investigation was not known in Conneaut prior to my arrival, and accordingly the first samples may be taken as indicative of the work as it was being carried out. It will be noticed that the results for the early samples (Nos. 4,115-4,120) compare favorably with those obtained later in the test.

The amount of alum in use was 150 pounds per day with a pumpage of 1,100,000 gallons. There was considerable slippage, thus the amount of alum used was approximately one grain per gallon of water. This amount cannot be verified from the analyses in this investigation for the reason that the samples of unfiltered water taken from the top of the tunnel shaft do not represent normal lake water. The samples were taken from the tunnel because the lake was so rough a row-boat could not be used to reach the intake. The alkalinities and incrusting constituents of the unfiltered samples (tunnel samples) are quite unlike the lake water, while the effluents are such as would come from a filtered lake water by the process in use. The water in the upper part of the tunnel on October 29 was much harder than the water from the lake, and it would be advisable to ascertain whether ground water was gaining an entrance to the tunnel, as is indicated by some of the present findings.

Filter No. 3 is the new one at the plant, and its effluents show an average of 35 bacteria per cc. This is easily within a satisfactory standard. The contract between the water company and the manufacturers of the filter calls for a stated bacterial efficiency only when the unfiltered water contains 3,000 or more bacteria per cc. While filter No. 3 was yielding a satisfactory effluent at this time, yet it will be noticed that it was doing inferior work to both filters No. 1 and No. 2. See combined effluents as well as individual effluents for 1, 2 and 3.

CONCLUSIONS.

The water of the present public supply at the time of this investigation was clear, safe and acceptable for private and public use.

A satisfactory filtration is being obtained.

The results obtained are slightly inferior to those obtained in May, 1904, while the amount of alum employed has been reduced about one-fourth. This decrease in efficiency sounds a warning against a further reduction in alum, and there are doubtless times when considerable more alum is needed.

Filter No. 3 was doing effective work at this time although slightly inferior to the work of filters Nos. 1 and 2.

The water in the upper part of the shaft of the tunnel at this time is not a normal lake water.

WATER SUPPLY OF DENNISON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3764	June 29.....	15	trace	none	ft ea'hy	.054	.002	none	none
3770	June 29.....	50off	2000	much	2 earthy	.708	.016	.012	trace
3771	June 29....	15	trace	none	none	.054	.008	none	none
3774	June 29.....	15	none	none	none	.054	.006	none	none
3976	Sept. 7.....	20	none	none	none	.052	.004	trace	trace
3977	Sept. 7.....	15	none	none	none	.072	.008	trace	trace
3978	Sept. 7.....	30	118	consid.	ft veg earthy	.186	.070	.004	trace
4005	Sept. 9.....	20	none	none	none	.090	.012	none	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3764	2.25	2.1	111	36	trace	176	66	250	no
3770	9.50	.4	41	17	20.0	1313	145	40500	no
3771	1.58	.4	49	45	trace	140	44	650	no
3774	1.90	2.1	109	20	trace	181	64	200	no
3976	1.36	6.0	101	33	.....	208	.....	135	no
3977	1.75	6.0	109	35	.....	214	.....	130	no
3978	2.62	6.0	114	26	.....	273	.....	850	no
4005	1.36	6.0	112	33	.....	212	.....	110	.....

Nos. 3764 and 3976 faucet at Parker House.

Nos. 3770 and 3978 unfiltered water from Big Stillwater Creek at intake.

No. 3774 Reservoir.

Nos. 3771, 3977 and 4005 combined effluent.

Dennison and Uhrichsville have a joint supply derived from Big Stillwater Creek and treated by mechanical filtration with alum as the coagulant. See Report for 1899, page 94. This plant was tested in April

and again in June, 1900, with average efficiencies of 94.8 and 98.4 per cent. respectively. See Report for 1900, page 68.

The bacteriologist visited Dennison in June and again in September, 1904, for the purpose of running tests on the filters and the following extracts are taken from his reports.

FROM REPORT ON TEST OF JUNE 29, 30, 1904.

Sample number.	Source.	Hour.	Oxygen required.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Efficiency.
June 29.								
3764	Hotel.....	1:00 p.m.	2.25	111	36	250	no	.....
3765	Unfiltered.....	1:40 p.m.	....	....	....	14300	....	.....
3766	Effluent No. 1	1:50 p.m.	....	....	....	360	....	97.5%
3767	Effluent No. 2.....	1:55 p.m.	....	....	....	300	....	97.9%
3768	Effluent No. 3.....	2:00 p.m.	....	....	....	425	....	97.0%
3769	Effluent No. 4.....	2:05 p.m.	....	....	....	575	....	96.0%
3770	Unfiltered.....	2:50 p.m.	9.50	41	17	40500	no	.....
3771	Effluents 1-4.....	3:15 p.m.	1.58	49	45	650	no	98.4%
3772	Unfiltered.....	6:30 p.m.	10.00	28	17	19000	yes	.....
3773	Effluents.....	6:40 p.m.	2.40	31	45	825	no	95.6%
3774	Reservoir.....	7:10 p.m.	1.90	109	20	200	no	.....
3775	Effluent No. 1.....	7:50 p.m.	....	....	....	475	....	97.5%
3776	Effluent No. 2.....	7:55 p.m.	....	....	....	730	....	96.2%
3777	Effluent No. 3.....	8:00 p.m.	....	....	....	400	....	97.9%
3778	Effluent No. 4.....	8:05 p.m.	....	....	....	635	....	96.7%
3779	Unfiltered.....	9:05 p.m.	9.30	33	16	8400	yes	.....
3780	Effluents.....	9:15 p.m.	.45	27	53	400	no	95.2%
June 30.								
3781	Unfiltered.....	7:45 a.m.	8.10	42	14	11000	yes	.....
3782	Effluents 1-3	8:00 a.m.	....	10	61	340	no	96.9%
3783	Unfiltered.....	9:25 a.m.	5.80	39	14	9700	yes	.....
3784	Effluents.....	9:35 a.m.	2.20	10	52	110	no	98.9%
3785	Unfiltered.....	10:45 a.m.	....	....	....	4000	....	.....
3786	Effluent 1 and 4...	10:55 a.m.	....	....	....	140	....	96.5%
3787	Effluent 2.....	11:05 a.m.	....	....	....	635	....	84.1%
3788	Effluent 3.....	11:10 a.m.	....	....	....	230	....	94.2%
3789	Unfiltered.....	1:50 p.m.	....	....	....	18500	....	.....
3790	Effluent No. 1.....	2:00 p.m.	....	....	....	250	....	98.6%
3791	Effluent No. 2.....	2:05 p.m.	....	....	....	160	....	99.1%
3792	Effluent No. 3.....	2:10 p.m.	....	....	....	340	....	98.2%
3793	Effluent No. 4.....	2:15 p.m.	....	....	....	165	....	99.1%

Average number of bacteria in unfiltered water June 29, 20550.

Average number of bacteria in filtered water June 29, 525.

Efficiency on June 29, 1904, 97.4%

Average number of bacteria in unfiltered water June 30, 10800.

Average number of bacteria in filtered water June 30, 263.

Efficiency on June 30, 1904, 97.6%.

The samples from the hotel and reservoir are not included in computing these averages as they came from an unfiltered water at a previous period, and we have no knowledge of the number of bacteria in that raw water.

The averages of the alkalinities of the unfiltered and filtered waters of June 29 and 30 were 36.6 for the unfiltered and 25.4 for the filtered.

EFFICIENCY OF FILTRATION.

The individual tests gave bacterial removals of from 94.2 to 99.1 per cent. except in filter No. 2 (84.1 per cent.) at eleven o'clock on the morning of June 30, when it had been allowed to go too long without cleaning. It was cleaned just after sample 3,787 was taken and three hours later gave an effluent showing the lowest number of bacteria and the best percentage efficiency of the test. The average removal of 97.4 per cent. of the bacteria on June 29 and of 97.6 per cent. on June 30 is in compliance with the agreement between the Jewell Filter Company and the Dennison Water Company, that the average removal of bacteria should not be below 97 per cent. when the raw water had over 7,000 bacteria per cc. From a chemical standpoint the filtered water is satisfactory as shown by the samples collected. At times there was a slight turbidity in the effluent, having been brought about by a defective method of introducing the alum, or by allowing the filters to run too long without cleaning. In that connection it should be remembered that the raw water was in exceedingly bad shape to handle at this time, for it contained over 1,100 parts per million of suspended matter, and with the coefficient of turbidity .55 it is seen that there was some fine clay in the water.

Intestinal bacteria were not found in the five effluent samples examined qualitatively nor in the samples from the reservoir and faucet at the hotel, while they were found in four out of five samples of the unfiltered water.

COAGULANT.

The coagulant in use is block crushed alum from the Pennsylvania Salt Company. No record has been kept of the amount of alum used from day to day, but the amount has been varied according to circumstances. A record is henceforth to be kept of the amount used and the time of its application. Taking the amounts of alum purchased for six months past, and the amounts of water pumped, it is seen that the average amount of alum used has been a little less than one grain per gallon of water. The amount of alum in use at the time of the test could not be definitely determined by those operating the filters as the apparatus for admitting the alum was out of order. Only one alum tank was in use and the strength of the solution in it varied according to the addition of more alum

or water. The solution ran from the alum tank to the box well by gravity, and the rate of flow was regulated by a valve. The strength of the solution and the rate of flow were determined at 4:45 p. m. and 8:00 p. m., on June 29. The 8 o'clock solution was almost exactly twice as strong as the one at 4:54 and was entering nine-tenths as fast. These defects in the handling of the coagulant are to be corrected.

The operators were using more alum than usual, and the findings show it was necessary. There can be but few periods in the year, and these of but two or three days, when so much alum would be used as on the 29th and 30th of June owing to the high and muddy condition of Big Stillwater Creek. It is during these periods of high water that the alkalinity is lowest, and, as the carbonates and bicarbonates (measured by the alkalinity) are the factors that decompose the alum, it is well to note whether there was any alum in the filtered water. This may be told from the alkalinities, for there can be no undecomposed alum in the effluent if the effluent have an alkalinity. The average of the alkalinities of the effluents was 25.4 and the lowest was 10 parts per million. If at this unusual and critical time of low alkalinity in the raw water and a high demand for alum in order to clear that water, no alum appeared in the effluent, and on the contrary there still remained a good margin of safety in alkalinity, it is plain that there is no occasion for the citizens of Dennison and Uhrichsville to think any alum is present in the water of the present supply. Furthermore, should there be any alum in the effluent for even a short period by some accident, it would be promptly cared for by the alkalinity of the water stored in the reservoir.

The investigation shows the water of the public supply of Dennison and Uhrichsville was in proper condition for a public supply, that the filters were able to handle the raw water at a time of unusual strain, but that it would be advisable to have a more satisfactory arrangement for the introduction of the coagulant.

FROM REPORT ON TEST OF SEPTEMBER 7 AND 8, 1904.

Sample number.	Source.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Removal.
3978	Unfiltered.....	Sept. 7	1:30 p.m.	114	26	850	no	.....
3983	Unfiltered.....	Sept. 7	3:15 p.m.	.....	.....	1200	.....	.....
3984	Unfiltered.....	Sept. 7	6:45 p.m.	.....	.....	1250	.....	.....
3987	Unfiltered.....	Sept. 7	8:20 p.m.	.....	.....	1225	.....	.....
3992	Unfiltered.....	Sept. 7	9:20 p.m.	125	31	1200	no	.....
3996	Unfiltered.....	Sept. 8	7:15 a.m.	126	28	700	no	.....
4001	Unfiltered.....	Sept. 8	8:50 a.m.	.....	.....	500	.....	.....
4004	Unfiltered	Sept. 8	9:45 a.m.	.....	.....	1500	.....	.....
Average.....		.....	.....	122.7	28.3	1051	.....	.....
3976	Hydrant in town	Sept. 7	12:45 p.m.	101	33	135	no	.....
3994	Hydrant in town	Sept. 8	6:20 a.m.	.....	.....	130	.....	.....
Average.....		.....	.....	.....	.....	132.5	.....	.....
Group A.								
3977	Effluent com. ...	Sept. 7	1:15 p.m.	109	35	130	no	.....
3979	Effluent No. 1...	Sept. 7	2:30 p.m.	.....	.....	190	.....	.....
3980	Effluent No. 2...	Sept. 7	2:45 p.m.	.....	.....	230	.....	.....
3981	Effluent No. 3...	Sept. 7	2:55 p.m.	.....	.....	80	.....	.....
3982	Effluent No. 4...	Sept. 7	3:05 p.m.	.....	.....	80	.....	.....
3985	Effluent No. 1-2	Sept. 7	7:00 p.m.	.....	.....	170	.....	.....
3986	Effluent No. 3-4	Sept. 7	7:10 p.m.	.....	.....	70	.....	.....
3988	Effluent No. 1...	Sept. 7	8:30 p.m.	.....	.....	120	.....	.....
3989	Effluent No. 2...	Sept. 7	8:35 p.m.	.....	.....	260	.....	.....
3990	Effluent No. 3...	Sept. 7	8:40 p.m.	.....	.....	75	.....	.....
3991	Effluent No. 4...	Sept. 7	8:45 p.m.	.....	.....	110	.....	.....
3993	Effluent com.....	Sept. 7	9:30 p.m.	125	37	150	no	.....
Aver. of group A.		.....	.....	.....	.....	138	.....	86.9%
Group B.								
3995	Effluent com. ...	Sept. 8	6:50 a.m.	125	35	130	no	.....
3997	Effluent 1 and 2	Sept. 8	7:45 a.m.	.....	.....	110	.....	.....
3998	Effluent 3 and 4	Sept. 8	7:55 a.m.	.....	.....	60	.....	.....
4000	Effluent com. ...	Sept. 8	8:40 a.m.	125	34	220	no	.....
Aver. of group B		.....	.....	.....	.....	130	.....	87.6%
Group C.								
4002	Effluent 1 and 2.	Sept. 8	9:10 a.m.	.....	.....	95	.....	.....
4003	Effluent 3 and 4.	Sept. 8	9:20 a.m.	.....	.....	60	.....	.....
4005	Effluent Com.....	Sept. 8	10:10 a.m.	112	33	110	.....	.....
Aver. of group C		.....	.....	.....	.....	88	.....	91.6%
Aver. of effluents		.....	.....	119.2	34.8	129	.....	87.7%

EFFICIENCY OF FILTRATION.

As the raw water at this time contained less than 7,000 bacteria per cubic centimeter, the effluent should contain not more than 200 bacteria per cc. in order to comply with the terms of the original contract. The average of the effluent samples was 129 bacteria per cc. Three effluent samples (Nos. 3,980, 3,989 and 4,000) were above this limit of 200. Two of these three were individual samples from filter No. 2, while the other was a combined sample from all four filters. The results indicate that filter No. 2 was not doing quite as good work as the others.

COAGULANT.

In contrast with the former test when the stream was unusually muddy, the present test was at a time when the water of Big Stillwater Creek was about as clear as it ever gets. As a result the plant was being operated with a minimum amount of coagulant, viz., about .3 grains per gallon of water as computed by those in charge of the plant. The samples of group A were obtained under these conditions. At our request the amount of coagulant was doubled (.6 grains per gallon) for the samples of group B. Again at our request the amount of coagulant was increased to about 1 grain per gallon for the samples of group C. While at this particular time a potable water was obtained with a limited use of the coagulant, yet it seems advisable to not attempt to use less than $\frac{1}{2}$ grain of alum per gallon of water when the water is clearest, while the use of 1 grain as a minimum is productive of better results.

The second alum tank is now in use, but the method of making the alum solution is still open to objection, because it does not give a uniform strength at all times. This defect is to be corrected.

QUALITY OF THE FILTERED WATER.

The samples of effluent and hydrant water show that the water of the public supply for Uhrichsville and Dennison was at the time of this investigation a clear, safe and desirable one for domestic and other purposes.

WATER SUPPLY OF ELYRIA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3659	May 25 ..	15	98	slight	ear'h veg	.118	.004	mr tr.	none
3660	May 25...	10	8	very sl	vegetative	.074	.004	none	none
3671	May 25...	10	25	slight	ft. earthy	.120	.016	.002	none
3678	May 25...	tr	tr	trace	earth veg	.074	.008	.005	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3659	3.10	8.2	100	14	1.9	262	.....	315	no
3660	2.00	8.5	104	15	.3	173	.....	230	no
3671	3.20	7.8	104	12	.5	160	.....	610	in lcc
3678	2.10	8.0	104	15	.1	169	.....	.....	.....

No. 3,659. Hydrant at Broad and Chestnut streets.

No. 3,660. Hydrant at Lake and Spruce streets.

No. 3,671. Unfiltered Lake Erie water.

No. 3,678. Effluent from filters.

The source of the supply is Lake Erie and the water is treated by mechanical filters using sulphate of iron as a coagulant. See Report for 1903, page 70. Also Report on Water Supply for Elyria elsewhere in this volume.

RESULTS OF ANALYSES OF SAMPLES FROM ELYRIA.

Number.	Source of sample.	Date.	Hour.	Bacteria per cc.	Oxygen required.	Alkalinity.	Incrusting constituents.
3661	Hydrant W. Third St. .	May 25	10:20 a.m.	1100	....	103	41
3662	Hydrant near depot . . .	May 25	10:50 a.m.	2000	....	98	23
3663	Faucet at hotel.	May 25.	11:30 a.m.	100	3.00	....	....
3666	Effluent No 1 filter. . . .	May 25.	3:30 p.m.	76	....	....	....
3867	Effluent No. 2 filter. . . .	May 25.	3:35 p.m.	59	....	....	....
3668	Effluent No. 3. filter. . . .	May 25.	3:40 p.m.	76	....	....	....
3669	Effluent No. 4 filter. . . .	May 25.	3:45 p.m.	77	....	....	....
3672	Faucet at pumping. Sta.	May 25.	4:10 p.m.	140	....	....	....
3670	Combined effluent.	May 25.	3:50 p.m.	80	2.20	98	21
3673	Unfiltered lake.	May 25.	5:00 p.m.	590	....	....	....
3674	Effluent No. 1 filter. . . .	May 25.	5:05 p.m.	51	....	....	....
3675	Effluent No. 2 filter. . . .	May 25.	5:10 p.m.	17	....	....	....
3676	Effluent No. 3 filter. . . .	May 25.	5:15 p.m.	27	....	....	....
3677	Effluent No. 4 filter. . . .	May 25.	5:20 p.m.	27	....	....	....
3679	Faucet at hotel.	May 26.	11:00 a.m.	122	1.80	100	19
3680	Unfiltered lake.	May 26.	3:20 p.m.	2300	....	....	....
3681	Effluent No. 1 filter. . . .	May 26.	3:25 p.m.	320	....	....	....
3682	Effluent No. 2 filter. . . .	May 26.	3:30 p.m.	350	....	....	....
3683	Effluent No. 3 filter. . . .	May 26.	3:35 p.m.	350	....	....	....
3684	Effluent No. 4 filter. . . .	May 26.	3:40 p.m.	400	....	....	....
3685	Unfiltered lake.	May 26.	4:00 p.m.	2200	....	106	5
3686	Combined effluent.	May 26.	4:10 p.m.	240	....	103	....
3687	Faucet at hotel.	May 26.	6:00 p.m.	82	....	104	27

Omitting numbers 3,661 and 3,662, the findings show the water as used at Elyria ranged from 82 to 315 bacteria per cc., with an average of 170. The bacterial efficiency of May 25th was 91.0 per cent., and on May 26, 85.2.

WATER SUPPLY OF FOSTORIA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3929	Aug. 30	32	trace	trace	3 vegeta	.332	.010	none	none
3930	Aug. 30..	32	trace	trace	3 vegeta	.396	.022	none	none
3931	Aug. 30..	23	trace	trace	3 vegeta	.334	.018	trace	none
3975	Aug. 30..	.....	.....	.....	.....	.....	.....	.....	.....

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3929	4.99	1.0	58	6.0	.45	116	33	135	no
3930	4.80	1.0	60	2.0	.45	127	29	195	no
3931	4.90	1.0	59	2.0	.45	113	23	410	no
3975	.....	.....	.....	.....	.....	.....	.....	355	.....

No. 3,929. Main reservoir.

No. 3,930. Effluent from clear well.

Nos. 3,931 and 3,975. Hydrant samples in the city.

The supply is derived from Portage Creek by a diverting canal to an upper reservoir and then to the main reservoir. From the main reservoir the water passes to the "filter," a circular bed of sand and gravel, and from this so-called filter to the clear well.

EFFICIENCY OF FILTRATION.

At the time of the visit the upper reservoir was dry and no water was flowing into either reservoir. The main reservoir had received no fresh addition of water for some little time.

The reservoir, clear well, and hydrant samples show only minor

analytical differences that are of no moment at this time. The reservoir water reaches the consumer without any material change. The analyses show that the filter produced no filtration effect at this time, and the number of bacteria was greater in the clear well and hydrant samples than in the reservoir. These results, like previous ones, indicate that the so-called filter at Fostoria is not a filter as regards the work accomplished.

QUALITY OF THE PUBLIC SUPPLY.

At the time of the visit, the water of the public supply was in good condition for a surface water. It was almost free from turbidity, was soft, free from sewage pollution, and did not contain much vegetative organic matter. The water had a little vegetative odor and taste, but it was not sufficient in amount to be called objectionable and the water would be classed as suitable for a public supply.

WATER SUPPLY OF GENEVA.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3645	May 11...	60	10	very sl.	ft. ea'h	.306	.018	tr off	none
3646	May 11...	tr	mr tr	trace	ft. oily	.084	.060	mr tr	none
3893	May 24 ..	20	none	none	faint	.120	.008	none	none
3894	May 24 ..	20	none	none	faint	.118	.006	none	none
3897	May 24 ..	35	15	slight	faint	.236	.024	.003	none
3903	May 24 ..	20	17	slight	faint	.164	.008	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3645	9.65	3.5	47	2	.35	115	46	500	in 50cc.
3646	1.35	2.9	12	46	.4	92	26	10	no
1893	2.01	3.4	21	49	trace	136	32	75	no
3894	2.28	3.4	24	80	trace	141	38	16	no
3897	5.00	3.1	74	28	.6	158	44	430	in 1cc
3903	2.07	4.0	20	82	trace	184	33	105	no

No. 3645 and 3897 unfiltered water from Grand River at intake.

No. 3893 Faucet at Tuttle House.

No. 3894 Reservoir.

Nos. 3646 and 3903 effluent from filters.

The supply is from Grand River and the water is handled by mechanical filters with alum as the coagulant. In May samples were collected by Dr. D. G. Palmer, member of the State Board of Health, while in August the plant was visited by the engineer and the bacteriologist in order to run a test on the filters. The following extracts are taken from the reports of the bacteriologist made at those times.

FROM REPORT ON MAY SAMPLES.

No. 3,645 represented the unfiltered water from Grand River at the intake; No. 3,646 represented the filtered water of the public supply. Some of the results indicate that the river water was slightly different in character at the time of sampling and at the time when the filtered water was drawn from it, as might be expected with a reservoir intervening, but the differences may be ignored in the practical consideration of the efficiency of filtration. The absence of intestinal bacteria in the filtered water, the presence of only 10 bacteria to the cubic centimeter, a reduction of 98 per cent. in bacteria, and the chemical results all show that the filtration is effective. The filtered water will be good and safe as long as this purification is maintained. The river water is objectionable without treatment and would be quite unsatisfactory for a public supply.

As regards hardness it may be said that this sample indicates Geneva has one of the softest waters used as public supplies in Ohio. The determinations for alkalinity and incrusting constituents indicate the use of a large amount of coagulant, but not more than the water is capable of handling.

FROM REPORT ON AUGUST SAMPLES.

Sample number.	Source.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Bacteria Efficiency.
3897	Grand River.....	9:00 a. m.	74	28	430	yes	.....
3900	Grand River.....	10:05 a. m.	.....	.....	410	.....	.....
3901	Grand River.....	10:45 a. m.	.....	.....	360	.....	.....
	Average.....	.....	74	28	400	.....	.....
*3892	Faucet at Tuttle Ho's	9:30 p. m.	24	46	33	no	.....
*3893	Faucet at Tuttle Ho's	7:00 a. m.	21	49	75	no	.....
	Average.....	.....	22.5	47.5	54	.....	86.5%
3894	Reservoir.....	7:40 a. m.	24	80	16	no	96.0%
3895	Effluent at filter....	8:15 a. m.	32	60	70	no	.....
3896	Effluent at filter....	8:45 a. m.	.....	.....	115	.....	.....
3898	Effluent at filter....	9:15 a. m.	28	61	100	no	.....
3899	Effluent at filter....	9:50 a. m.	.....	.....	120	.....	.....
3902	Effluent at filter....	11:00 a. m.	.....	.....	14	.....	.....
3903	Effluent at filter....	11:15 a. m.	20	82	105	no	.....
	Average.....	.....	26.7	67.7	87	.....	78.3%

*Aug 23, others August 24.

CHARACTER OF FILTERED AND UNFILTERED WATERS.

Sample No. 3.897 shows the water of Grand River before filtration to carry some suspended matter, vegetative organic matter, and some material from intestinal sources, making it an undesirable water for use in that condition. The various samples of filtered water, but more especially those from the village and from the reservoir, show that the suspended matter has been removed, that the vegetative organic influence has been largely eliminated, and that the intestinal forms of bacteria have been removed. In none of the samples obtained from Geneva has there been any alum in the filtered water as there has been sufficient alkalinity to handle even more coagulant than was employed. The results show the filtered water to be of good quality, safe and desirable for a public supply.

WATER SUPPLY OF LAKESIDE.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3939	August 31	20	20	very sl	ft. earth	.120	.004	trace	none
3940	August 31	20	20	very sl.	ft. earth	.120	.006	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3939	1.45	8.2	93	.....	.....	184	.....	160	no
3940	1.16	8.2	93	.....	.....	185	.....	130	no

No. 3939. Unfiltered Lake Erie water as it enters the filters.

No. 3940. Filtered water from a faucet on Second street.

The supply is derived from Lake Erie and filtered through slow sand filters by gravity without a coagulant. See Reports for 1898, page 103; 1899, page 221; and 1903, page 237. Previous investigations have shown varying efficiencies from good to very bad.

The engineer visited Lakeside on August 12, collected samples Nos. 3,864-3,869 and took them to Columbus for plating.

The bacteriologist visited Lakeside in July and again the last of August conducting filter tests as shown below. Portions of the reports of the bacteriologist are given below.

REPORT ON JULY SAMPLES.

	Sample number.	Date.	Hour.	Source.	No. of Bacteria per cc.
Unfiltered.....	3825	July 17...	1:45 p.m.	As delivered to tanks.....	600
Unfiltered.....	3827	July 17...	3:30 p.m.	As delivered to tanks.....	375
Unfiltered.....	3830	July 17...	6:30 p.m.	As delivered to tanks.....	750
Unfiltered.....	3832	July 17...	7:50 p.m.	As delivered to tanks.....	410
Unfiltered.....	3834	July 18...	6:30 a.m.	As delivered to tanks.....	310
Unfiltered.....	3836	July 18...	9:45 a.m.	As delivered to tanks.....	375
Filtered.....	3824	July 17...	12:45 p.m.	Cottage on Lake front.....	220
Filtered.....	3828	July 17...	3:45 p.m.	Public fountain.....	475
Filtered.....	3829	July 17...	4:15 p.m.	Faucet at hotel.....	150
Filtered.....	3831	July 17..	6:45 p.m.	Hoibye's cottage.....	1100
Filtered.....	3833	July 17...	8:15 p.m.	Hoibye's cottage.....	420
Filtered.....	3835	July 18..	6:50 a.m.	Hoibye's cottage.....	300
Filtered.....	3837	July 18...	10:00 a.m.	5th St. near tanks.....	380
Filtered.....	3838	July 18..	10:15 a.m.	Faucet at hotel.....	275

Average number of bacteria per cc.	Unfiltered	Filtered.	Percentage of removal.
July 17th, 1904.....	534	491	8.1%
July 18th, 1904.....	342	318	7.0%

Sample 3,826 collected at 2:10 p. m. at a cottage on Jassamine Avenue gave 23,000 bacteria, but the result is so abnormal that it is omitted from the above list. Additional determinations were made as follows:

PARTS PER MILLION.

Sample number.	Source.	Oxygen required.	Nitrogen as		Chlorine.	Colon present.
			Nitrites.	Nitrates.		
3824	Filtered at Umstead cottage	2.30	m'r tr	none	.....	not in 50 cc
3825	Unfiltered at tanks.....	2.80	.006	none	11.0	yes in 50 cc
3836	Unfiltered at tanks.....	2.50	.006	none	11.0	yes in 1 cc
3837	Filtered near tanks.....	2.20	mr' tr	none	12.0	yes in 1 cc

While the number of bacteria in the lake water was not high, yet the removal of but 8.1 per cent. of the bacteria from the raw water on July 17, and of but 7.0 per cent. on July 18, shows that the filters were not at this time doing effective work. The attendance at the grounds was not heavy at the date of this visit, and while there was no measurement of the amount of water pumped, yet it appeared to be less than at former tests.

With no greater quantity of water being handled, and with two additional filters to help do the work, yet the result obtained is very poor and the low percentage of removal would indicate the probability of defects in at least part of the filters.

REPORT ON SAMPLES OF AUGUST 12.

Sample number.	Source.	Oxygen required.	No. of Bacteria.	Colon present.
3864	Unfiltered as it enters tank No. 4.....	3.40	300	yes.
3865	Unfiltered as it enters tank No. 5.....	2.60	1850	yes.
	Average for unfiltered.....	3.00	1075	
3866	Effluent from tank No. 2.....	2.65	1050	yes.
3867	Effluent from tank No. 3.....	2.40	130	yes.
3868	Effluent from tank No. 4.....	1.65	40	no
3869	Effluent from tank No. 5.....	2.65	25	no
	Average for filtered.....	2.34	311	

These results show an average removal of 71.1 per cent. for the old filters, and the result in filter No. 2 shows a removal of only 2.3 per cent.

Intestinal bacteria were present in both samples of the unfiltered water, but were present in but two of the four filtered samples.

The reduction in the oxygen required was 22 per cent.

REPORT ON SAMPLES OF AUGUST 30-31.

UNFILTERED.

Sample number.	Date.	Hour.	Source.	No. of bacteria per cc.
3941	August 30. . .	6:30 p. m.	Hotel washroom.....	300
3942	August 30. . .	7:30 p. m.	As enters filters.....	235
3946	August 31. . .	5:45 a. m.	As enters filters.....	820
3947	August 31. . .	6:15 a. m.	Hotel washroom.....	400
3939	August 31. . .	9:30 a. m.	As enters filters.....	160
3950	August 31. . .	3:00 p. m.	As enters filters.....	165
3957	August 31. . .	7:00 p. m. .	As enters filters.....	270
			Average unfiltered.....	336

FILTERED.

3943	August 30. . .	8:00 p. m.	Public fountain.....	275
3944	August 30. . .	8:10 p. m.	Faucet on 2nd St.	100
3945	August 31. . .	5:10 a. m.	Faucet on 2nd St.	75
3940	August 31. . .	9:30 a. m.	Faucet on 2nd St.	130
3948	August 31. . .	12:10 p. m.	Public fountain.....	165
3949	August 31. . .	2:20 p. m.	Faucet on 2nd St.	60*
3951	August 31. . .	3:05 p. m.	Effluent filter No. 2.	115
3952	August 31. . .	3:10 p. m.	Effluent filter No. 3.	35
3954	August 31. . .	3:20 p. m.	Effluent filter No. 5.	110
3955	August 31. . .	3:25 p. m.	Effluent filter No. 6.	160
3956	August 31. . .	3:30 p. m.	Effluent filter No. 7.	200
3958	August 31. . .	9:00 p. m.	Hotel fountain.....	50
			Average filtered.....	123

*Overspreading growth.

Sample Nos. 3,949 and 3,950 contained 1.31 and 1.74 parts per million for oxygen required while colon bacilli were not present in either sample in 50 cc.

The average number of bacteria in the lake water was quite low, making a bacterial efficiency of only 60.4 per cent.

The average number of bacteria in the filtered water is not bad, but there is too great a fluctuation and the results agree with former ones in showing the filters as operated are not doing effective work. That the public supply was a usable one at this time, depended largely on the absence of pollution of the lake water near the intake, and with changed conditions the supply might be a usable one.

WATER SUPPLY OF MIDDLEPORT.

See Pomeroy.

WATER SUPPLY OF OBERLIN.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3877	Aug. 17	18	none	none	ft. musty	.284	.028	trace	trace
3878	Aug. 17	20	30	slight	ft. swampy	.130	.004	.002	trace
3879	Aug. 17	25	25	slight	ft. swampy	.148	.014	none	trace
3883	Aug. 18	25	10	slight	ft. musty	.306	.038	.005	trace
3888	Aug. 18	12	none	none	ft. musty	.122	.070	trace	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3877	3.58	.....	.....	.....	.....	.....	.....	250	in lcc.
3878	2.67	17.2	277	51	trace	610	.....	840	in lcc.
3879	3.88	19.4	290	90	trace	665	.....	2400	in lcc.
3885	7.08	11.0	153	17	trace	391	130	445	no
3888	2.67	11.5	35	8	none	223	48	165	no

No. 3879. East branch of Vermilion River at intake near Kipton.

No. 3878. Kipton conduit about one half mile above the pumping station.

No. 3885. Reservoir at pumping station.

No. 3877. Effluent untreated chemically but filtered.

No. 3888. Effluent treated chemically and filtered.

The supply is obtained from the east branch of Vermilion River, conducted by gravity through the Kipton conduit to a reservoir at the pumping station, passed from the main reservoir through two treating basins with the addition of lime and soda ash, then the water is pumped

to a standpipe and passes through pressure filters before going to the consumers. Some ground water enters the conduit between Kipton and Oberlin. See Reports for 1898, page 535, and 1903, page 85.

PARTS PER MILLION.

A. EAST BRANCH OF VERMILION RIVER AT INTAKE NEAR KIPTON.

Sample number.	Date collected.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.
3879	August 17th....	6:00 p. m.	290	90	2400	yes in lcc.

B. KIPTON CONDUIT ONE-HALF MILE ABOVE PUMPING STATION.

3878	August 17th....	5:00 p. m.	277	51	840	yes in lcc.
3884	August 18th....	9:05 a. m.	281	69	1200	yes in lcc.
		Average.....	279	60	1020	

C. RESERVOIR FROM ABOUT 11 FEET BELOW SURFACE. (3886 ABOUT 5 FEET.)

3880	August 18th....	7:35 a. m.	153	17	440	not in 50cc.
3885	August 18th....	9:20 a. m. ..	153	17	445	not in 50cc.
3886	August 18th ...	9:30 a. m.	.....	.....	590	not in 50cc.
	Average.....	.....	153	17	492	

D. EFFLUENT FROM FILTERS. FILTERED BUT NOT TREATED WITH LIME AND SODA.

3877	August 17th ..	4:35 p. m.	250	yes in lcc.
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E. FROM 2D BASIN. TREATED WITH LIME AND SODA, BUT NOT FILTERED.

3881	August 18th. ...	7:50 a. m.	43	5	37	not in 50cc.
3887	August 18th....	9:40 a. m.	41	6	28	not in 50cc
	Average.....	.....	42	5.5	33	

F. EFFLUENT FROM FILTERS. FILTERED AND TREATED.

3882	August 18th....	8:00 a. m.	33	none	225	not in 50cc.
3883	August 18th....	8:50 a. m.	.....	.....	160	.....
3888	August 18th....	9:50 a. m.	35	8	165	not in 50cc.
3889	August 18th....	9:55 a. m. ..	.....	.....	243	.....
3890	August 18th ...	10:45 a. m.	.....	.....	170	.....
	Average.....	.....	34	4	195	

In this report the expression "filtered water" refers to water that has passed through the pressure filters, and the expression "treated water" to water that has received the chemical treatment with soda and lime.

CHARACTER OF THE WATER PRIOR TO PURIFICATION.

No. 3,879 shows the quality of the water from east branch of Vermilion River at a low stage. The water is hard, contains considerable organic matter, some suspended soil, and at this time intestinal bacteria, although it is possible the latter is not a constant finding else the effect would be shown in the reservoir samples. Nos. 3,878 and 3,884, from the conduit half a mile above the reservoir, show by their modified findings for organic matter, chlorides, alkalinity, and incrusting constituents, that another water is gaining access to the conduit between its source and mouth. The findings indicate that this is a ground water and freer from the organic matter than the river, but that at present it is slightly harder than the latter. It is probable that this ground water is harder than the stream water when the stream is higher, and this is indicated by the character of the reservoir water. The conduit water (mixed river and ground water) is considered as the original source of supply in computing the percentages of efficiency. The reservoir water is a mixture of ground and river water, and the analyses show it to contain considerable vegetative matter.

THE SOFTENING PROCESS.

The effect of the softening process is shown by a comparison of the reservoir water with that from the second basin of the effluent from the filters. The alkalinity of the reservoir was 153, and the incrusting constituents 17. The corresponding findings in the water that had been treated and filtered were 34 and 4; this shows that the process was in successful operation at the time of the investigation and that a soft water was obtained without objectionable features due to the softening process.

BACTERIAL REMOVAL DUE TO TREATING AND FILTERING.

At the time of sampling the reservoir contained only about half as many bacteria per cc. as the conduit water, so that 51.8 per cent. of removal was due to sedimentation, as judged by these samples. The use of the water without treatment but with filtration on August 17 due to urgent request of that procedure by some of the citizens (on account of Lorain County firemen's day festivities in Oberlin) gave opportunity for taking sample No. 3,877. Filtration without treatment gave a reduction of 75.5 per cent. from the conduit water, or a reduction of 49.2 per cent. from the reservoir water. Under this procedure intestinal bacteria were present in the filtered water in 1 cc. portions of the sample. During that procedure

when the pumps were running, they drew all of the conduit water and some reservoir water besides, the reservoir water coming from the pipe with the opening five feet under water. In the regular treatment the reservoir water is drawn off through another pipe with an opening 11 feet under water, and the conduit water must enter the reservoir before it can go to the treating basins.

Comparing the findings of groups E, B and C above it is seen that the chemical treatment alone gave a reduction of 93.3 per cent. of the bacteria from the reservoir to the second basin, or a reduction of 96.8 per cent. from the conduit water to the second basin water by sedimentation and chemical treatment. At the time of investigation the passage of the water through the pressure filters after treatment with chemicals resulted in an increase in the number of bacteria, but without further data it would be unfair to say that this increase was due to the filters being defective. It should be remembered that untreated water of a higher bacterial content was fed to these filters on August 17 and that the effluent from the filters on the first day contained more bacteria than on the second day. The real value of the filters can hardly be judged from these samples alone.

Under the conditions as they were at the time, sedimentation, treatment and filtration removed 81.1 per cent. of the bacteria from the conduit water, while treatment and filtration removed 60.7 per cent. of the bacteria from the reservoir water. The effluent obtained by treating and filtering contained 77.2 per cent. as many bacteria as the effluent obtained the day before by filtration alone, and in addition the filtered and treated effluent did not contain intestinal bacteria, while that obtained by filtration alone did. Accordingly, from the standpoint of health, the water obtained by treatment and filtration is superior to that obtained by filtration alone, as well as being far more desirable because so much softer.

TASTE AND ODOR.

A list of more than thirty different complaints as to taste, odor and evil effects of the water has been submitted and many of those offering complaints held the trouble resulted from the process of treatment. While some of the effects reported are absurd, it is true that the Oberlin water has both taste and odor of an objectionable kind and degree. Especial attention was given to this phase of the matter and extra samples taken to locate the trouble. The trouble is not one of odor alone, but full more of taste, and furthermore, the trouble is present just as much in the untreated and unfiltered water as in the effluent. The trouble is due to the vegetation in the reservoir and is of such a nature as not to be removed by the chemical treatment or by filtration. The taste and odor come from the growth of *chara* at the bottom of the reservoir. Other minor growths are present, but the chief offender is the species named. The water from the intake at Kipton, and from the conduit, had a swampy taste and odor that

was entirely different from the musty or fishy effect from the reservoir water. The water at the surface of the reservoir is better than that at any depth and the taste and odor increase with the depth. There was a very marked difference between the surface water and that obtained five feet below the surface. Again the difference was great between samples taken five feet below the surface and eleven feet below the surface. Samples were taken containing chara and an extreme effect obtained. The taste is increased by heating. The increase of taste and odor with the greater depths explains in part why the water on Firemen's Day tasted better than when it was receiving the chemical treatment. As stated before, the conduit water was taken directly from the conduit on that day, and this water has no effect from chara, therefore it has only a swampy odor and taste. The reservoir water that was taken for use on Firemen's Day was drawn from the outlet that is five feet below the surface, and accordingly does not have so strong a taste and odor as that drawn from the other pipe that is used in the regular treatment, and which has its opening eleven feet below the surface. The difference in taste and odor on August 17 was due not to the absence of the process of chemical treatment, but to the use of reservoir water from a higher level combined with the direct use of the conduit water.

The combined odor and taste of this water is so objectionable that a consideration of the removal of the chara naturally arises. No definite information is at hand concerning the destruction of this particular species of plant life, but the recent work of Drs. Moore and Kellerman in the Department of Agriculture on closely related forms indicates that there is hope of removing the growth, but more definite information is needed before recommendations can be made.

WATER SUPPLY OF POMEROY AND MIDDLEPORT.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
4018	Sept. 13..	15	none	none	none	.050	.002	none	none
4028	Sept. 13..	10	none	none	none	.096	.012	none	none
4029	Sept. 13..	25	v'y sl.	v'y sl.	none	.150	.014	trace	none
4030	Sept. 13..	17	none	none	v'y ft.	.078	.004	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
4018	2.13	41.9	52	57	.....	254	.....	46	no
4028	2.67	38.7	52	43	trace	254	90	25	no
4029	3.03	38.6	53	36	.3	257	91	575	no
4030	2.38	43.0	52	55	trace	265	93	60	no

No. 4018. Hydrant in Middleport.

No. 4028. Filter effluent.

No. 4029. Ohio River at intake.

No. 4030. Reservoir.

Pomeroy and Middleport are supplied from the same public water supply. It is derived from the Ohio River, sedimented and passed through a Wetheril pressure mechanical filter. See Report for 1899, page 126. For previous studies of the Pomeroy water supply see Reports for 1901, page 383, and 1902, page 244.

UNFILTERED OHIO RIVER.

Sample number.	Date.	Hour.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Bacteria removal.
4025	Sept. 13.....	1:10 p. m.	55	35	900	no	.....
4027	Sept. 13.....	2:20 p. m.	.....	.....	800	.....	.....
4029	Sept. 13.....	3:15 p. m.	53	36	575	no
	Average....	54	35.5	758		

RESERVOIR.

4030	Sept. 13.....	4:45 p. m.	52	55	60	no
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HYDRANT.

4021	Sept. 12.....	9:40 p. m.	53	37	40	no
4022	Sept. 12.....	10:15 p. m.	60
4023	Sept. 13.....	11:25 a. m.	75
4031	Sept. 13.....	5:10 p. m.	.....	.....	37	.....	.....
	Average....	.....	.....	.....	53		

EFFLUENTS.

4024	Sept. 13.....	1:10 p. m.	53	47	105	no	.....
4026	Sept. 13.....	2:10 p. m.	.....	.....	110	.....	.....
4028	Sept. 13.....	3:00 p. m.	52	43	25	no	.....
	Average....	.....	.....	.....	80		89.4%
Average of all filtered samples.....			52.5	45.5	64	.....	91.6%

EFFICIENCY OF FILTRATION.

In considering the above bacterial results, it should be borne in mind that the raw water of the Ohio River at the time of investigation was low in bacteria, and to judge the efficiency of filtration by percentage of removal alone would be unfair. With such a raw water the effluent is to be judged by the total number of bacteria found in the filtered product. The average number of bacteria in filtered samples from all sources was 64, while only two of the individual findings were above the 100 mark. These results together with the chemical results show that the filtration at the time

of this visit was efficient. Sample No. 4,028 was taken when the filtration was being conducted at about one-half the rate of the other samples. The improvement is marked and indicates a more successful filtration with a slower rate. The reservoir sample shows that effective filtration had been obtained prior to the date of this visit.

COAGULANT.

The mode of administering the coagulant (alum) is open to some criticism in that it does not give an accurate and uniform distribution of the coagulant. Those in charge estimated they were using 12 to 15 pounds of alum per day, and as the pumpage was 200,000 gallons daily this would give one-half grain per gallon of water. No daily weighing is made of the alum used, but about one and one-third barrels (470 pounds) had been used since July 10, which would make the amount of alum less than one-third of a grain per gallon of water. That is a small margin, and it is questionable whether there should be any attempt made to use less than one-half grain of alum per gallon of water with the usual rate of filtration employed at this plant.

CHARACTER OF THE UNFILTERED AND FILTERED WATER.

The raw water of the Ohio was in one of its clearer stages at this time. It was also higher in mineral properties than when diluted by rains. Of course organic matter is shown in the unfiltered water and it is not a suitable water for a public supply without treatment.

The samples of filtered water show a satisfactory water for a public supply, and one that is safe to use for drinking and other domestic purposes. The results show that no undecomposed alum had passed in to the supply delivered to the consumers.

The alum used daily should be weighed and a record of the same be kept.

The openings in the fence around the reservoir should be closed so that small animals cannot gain entrance to the reservoir. The fence is nearly tight and would need but little attention.

WATER SUPPLY OF UHRICHSVILLE.

See Dennison.

WATER SUPPLY OF VERMILION.

The water of this supply is derived from the Vermilion River and handled by mechanical filtration. Sulphate of iron has been the coagulant used.

Samples were collected by the engineer on December 8, 1904, and transported to Columbus for plating. Examination gave the following results:

		Bacteria per cc.	Colon present.	Bacterial efficiency.
No. 4171	Unfiltered lake water.....	170	not in 50cc	.....
No. 4172	Effluent from filters.....	72	not in 50cc	57.7%
No. 4173	Effluent from hydrant.....	25000	not in 50cc	Increased.

The sample taken from a hydrant in the village was evidently accidentally contaminated.

The low number of bacteria in the unfiltered lake water at this time is such as to make it unfair to judge the filtration on a percentage basis. The number of bacteria in the effluent, 72, is within the usual limit stated in the requirements for bacterial efficiency.

WATER SUPPLY OF WARREN.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
3909	Aug. 25	10	none	none	none	.062	.002	none	none
3912	Aug. 25	27	10	v'y sl.	none	.162	.002	trace	none
3913	Aug. 25	10	none	none	none	.106	.004	trace	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrustants.	Iron.	Residue on evaporation.		Bacteria.	
						Total.	Loss on ignition.	No. per cc.	Colon present.
3909	1.73	5.7	109	16	trace	236	42	90	no
3912	3.49	4.8	118	none	.8	270	42	275	in lec.
3913	1.62	5.2	109	50	trace	254	41	130	no

No. 3909. Faucet at Wells Fargo Express Co.

No. 3912. Mahoning River at intake.

No. 3913. Effluent from filters.

The supply is derived from the Mahoning River and is handled by mechanical filtration, alum being the coagulant used. See Report for 1898, page 539.

UNFILTERED MAHONING RIVER.

Sample number.	Date.	Hour.	Oxygen required.	Alkalinity.	Incrusting constituents.	Bacteria per cc.	Colon present.	Bacteria Efficiency.
3907	Aug. 24.....	9:50 p. m.	.....	.....	.....	150	.....	.....
3911	Aug. 25.....	7:45 a. m.	3.78	122	46	540	yes	.....
3912	Aug. 25.....	8:45 a. m.	3.49	118	none	275	yes	.....
	Average.....	.....	3.64	120	23	322		

HYDRANT IN CITY.

3904	Aug. 24.....	3:10 p. m.	.....	.....	.....	23	.....	.....
3909	Aug. 25.....	6:45 a. m.	1.73	109	16	90	no	.....
	Average.....	.....	.....	.....	.....	57	.....	82.5%

EFFLUENTS AT FILTER HOUSE.

3905	Aug. 24.....	9:20 p. m.	2.19	107	44	43	no	.....
3906	Aug. 24.....	9:40 p. m.	.....	.....	.....	90	.....	.....
3908	Aug. 24.....	10:10 p. m.	.....	.....	.....	50	.....	.....
3910	Aug. 25.....	7:30 a. m.	2.27	112	51	45	no	.....
3913	Aug. 25.....	9:00 a. m.	1.62	109	50	130	no	.....
3914	Aug. 25.....	9:45 a. m.	.....	.....	.....	44	no	.....
3915	Aug. 25.....	9:50 a. m.	.....	111	49	110	no	.....
3916	Aug. 25.....	9:55 a. m.	.....	.....	.....	150	no	.....
3917	Aug. 25.....	10:00 a. m.	.....	.....	.....	70	no	.....
3918	Aug. 25.....	10:05 a. m.	.....	111	49	65	no	.....
3919	Aug. 25.....	10:10 a. m.	.....	.....	.....	75	no	.....
	Average.....	.....	2.03	110	48.6	79	.....	75.5%

EFFICIENCY OF FILTRATION.

In considering the above bacterial results, it should be borne in mind that the raw water of Mahoning River at the time of investigation was low in bacteria, and to judge the efficiency of filtration by percentages alone would be unfair.

The number of bacteria in the effluent samples at the filter house varied from 43 to 150 per cubic centimeter, with an average of 79, and these findings are within the limit usually specified for effective filtration when the number of bacteria in the raw water is below 3,000 per cc. The absence of intestinal bacteria in the hydrant and effluent samples shows that the filtration was removing this class of bacteria, for they were present in the unfiltered water. The chemical analysis shows that the filtration was satisfactory when considered from that standpoint.

Samples 3,914 to 3,919 represented effluents from individual filters Nos. 1 to 6 respectively. The results indicate that filters Nos. 2 and 3 were at the time doing less effective work than the others.

The results from the hydrant samples indicate that the work just prior to this visit was effective.

COAGULANT.

Those in charge of the filters estimated they were using about 1 and one-fourth grains of alum per gallon of water. The alkalinities obtained agree with this statement. The incrusting constituents of the river were subject to variation and too few samples were obtained to make the averages of much value.

CHARACTER OF UNFILTERED AND FILTERED WATER.

The unfiltered water of Mahoning River at this point shows such pollution that its use for domestic purposes in the raw state would not be safe. The results from these samples show that the filtered water was a safe and satisfactory water for the various uses to which a public supply is put.

EXAMINATIONS OF MISCELLANEOUS WATERS

PARTS PER

Sample Number.	Locality of Sample.	Date collected.		Cause for Examination.	Source of Sample.	Color.	Turbidity.	Sediment.	Odor.
		Month.	Day.						
4020	Ada.....	9	13	Typhoid	Dug well.....	25	tr	tr	none
3822	Akron.....	7	12	Quality.	Drilled well.....	10	tr	tr	none
3575	Alliance	3	23	Not given.....	Dug well.....	none			Earthy rain water
3816	Allen Co. Richl'dtp	7	7		Drilled well.....	25		s.	none
3817	"	7	7		Dug well.....	15	none	tr	none
4149	"	9	19		well.....				
4113	Arlington.....	10	27	Typhoid	Drilled well	tr	tr	tr	mouldy, sour
3631	Ashtabula.....	5	6	Typhoid	Dug well.....	8	tr	tr	ft. earthy
4104	Bellevue.....	10	24	Typhoid	Cistern.....	10	none	tr	peculiar
3715	Bluffton.....	6	7	Present supply.	Well.....	10off	10	v. s.	vegetative
4053	Butler-Oxford tp	9	20	Typhoid	Well.....	20	none	tr	faint
3891	Carroll-Monroe	8	22	Typhoid	Drilled well	22	15	s.	ft. earthy
4092	Chatfield.....	10	11	Typhoid	Dug and drilled	12	10	v. s.	earthy.
4107	Chatfield.....	10	24	Typhoid	Dug well.....	tr	none	tr	none
3652	Clarington.....	5	16	Quality.	Dug well.....	tr	25	s.	ft. earthy
3653	Clarington	5	16	Quality.	Dug well.....	tr	tr	mere tr	1 ft earthy
4156	Clermont Co								
	Goshen Tp.....	11	22	Typhoid	Drilled well....	20	35	district	Earthy wo'd
4086	Clinton-Greentp	10	6	Quality.	School drilled ..	10	20	s.	none
3592	Conneaut.....	4	8	Typhoid	Well.....				
3525	Crawford-Holmes Township.....	2	18	Typhoid	Dug well.....	10	none	mere tr.	none
4169	Crawford-Holmes	11	29	Typhoid	Dug well.....	15	trace	v. s.	faint
4068	Darke-Butler...	9	25	Typhoid	Dug & drilled ..	15	trace	trace	none
3565	Delaware-Berkshire.....	3	16	Typhoid	Dug well.....	15	trace	v. s.	faint
3484	Delaware G.I.S.	12	3	Pollution.	Spring.....	none	trace	trace	ammonia
3496	Delaware G.I.S.	12	6	Pollution.	Spring.....	50	20	s.	veg.
3629	Delphos.....	5	5	Quality.	Brewery waste.				foul
3540	†Dundee.....	*12	29	Typhoid	Well.....	29			
3541	Dundee.....	12	29	Typhoid	Well.....	29			
3542	Dundee.....	12	29	Typhoid	Well.....	29			
3543	Dundee.....	12	29	Typhoid	Well.....	29			
3544	Dundee.....	12	29	Typhoid	Well.....	29			
3545	Dundee.....	12	29	Typhoid	Well.....	29			
3651	Dunkirk.....	5	17	Bowel trouble	Drilled well....	10	138	distinct	soapy
4138	East Liverpool.	11	1	Preliminary to proposed supply	Island Well....	10	trace	v. s.	faint veg.
4139	East Liverpool.	11	1	Preliminary to proposed supply	Island well....	30			
4140	East Liverpool.	11	1	Preliminary to proposed supply	Ohio River. ...	30	10	v. s.	peculiar
4074	Fairfield-Liberty.	9	28	Typhoid	Dug well.....	15	none	none	none
3606	Fairfield-Walnut.	5	2	Typhoid	Dug well.....	12	8	v. s.	vegetative
3607	Fairfield-Walnut.	5	2	Typhoid	Drilled well....	10	trace	s.	faint woody
3533	Findlay.....	2	24	Typhoid	Dug well.....	10	none	v. s.	earthy
3875	Fostoria.....	8	18	Typhoid	Dug well.....	40	10	s.	none
3924	Fostoria.....	8	30	Typhoid	Dug well.....	25	trace.	trace.	trace.
3925	Fostoria.....	8	30	Typhoid	Dug well.....	25	trace	trace	trace
3926	Fostoria.....	8	30	Typhoid	Drilled well ..	30	trace	trace	none
3927	Fostoria.....	8	30	Typhoid	Drilled well ..	25	trace	distinct	none
3928	Fostoria.....	8	10	Typhoid	Drilled well ..	25	trace	trace	none
4067	Fostoria.....	9	22	Typhoid	Drilled well ..	12	15	s.	faint
3530	Forest.....	2	23	Quality.	Well.....	20	20	s.	rubber, oily
4146	Franklin.....	11	3	Typhoid	Driven well ..	n'ne	none	tr	faint
3490	Franklin-Clinton.	2	4	Typhoid	Driven well ..	none	8	tr	faint
3577	Franklin-Prairie.	3	25	Typhoid	Dug well.....	none	tr	tr	none
4008	Franklin-Prairie.	9	12	Typhoid	Dug & drilled ..	tr	none	none	none
3871	Fremont.....	8	12	Typhoid	Dug well.....	20	tr	none	none
3872	Fremont.....	8	12	Typhoid	Drilled well....				
4013	Galion.....	9	13	Typhoid	Drill'd&driven	19	138	distinct	faint
4014	Galion.....	9	13	Typhoid	Drilled&driven	25	20	s.	ft. earthy
3608	Girard.....	5	2	Typhoid	Drilled well ..	5	18	s.	ft. earthy
4080	Grove City.....	10	2	Typhoid	Dug well.....	tr	none	none	none
4096	Grove City.....	10	18	Typhoid	Dug well.....	15	tr	tr	peculiar

†Not collected in Laboratory containers.

*Received.

FROM PRIVATE SUPPLIES AND SPECIAL SOURCES.

MILLION.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incrusting Constituents.	Total Solids.	Color Present in 1 cc.	Bacteria per cc.	Remarks.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.							
1.91	.082	.006	.002	17.0	83.5	233	.....	796	no	375	Advise closing
1.23	.082	.018	tr	28.0	55.6	13	236	533	no	550	Undesirable
1.09	.054	.004	tr	12.0	102.0	48	.....	556	no	1300	Usable if protected.
.87	.064	.012	tr	none	5.5	523	.....	659	no	110	O. K. Hard. Iron.
1.89	.028	.064	none	12.0	45.9	311	.....	482	yes	325	Polluted.
.64	.....	.....	.003	tr	15.0	.....	.....	.....	.....	210	Potable.
1.20	.054	.004	.026	5.0	16.7	318	.....	552	no	1100	Some pollution abandon
1.30	.096	.010	.002	15.0	53.5	175	.....	651	no	1300	Usable, abandon, past pol.
1.88	.070	.506	.024	tr	15.0	174	.....	233	no	none	Clean.
1.93	.040	.210	m'retr	6.0	101.2	400	126	837	no	33	Undesirable.
.83	.056	.016	.024	6.0	9.5	311	.....	491	no	6800	Advise abandon
1.13	.010	.004	none	none	3.2	130	.....	186	no	100	Good.
1.63	.060	.010	.004	5.0	48.2	255	.....	765	no	1600	Usable.
1.26	.048	.024	tr	tr	32.0	256	.....	1326	no	400	Hard. Usable.
.90	.106	.014	tr	6.0	32.0	38	.....	501	no	550	Usable.
1.15	.076	.008	none	2.0	14.5	186	.....	903	yes	1700	Clean. Usable.
1.50	.060	1.180	.002	none	16.8	298	.....	383	no	400	Usable.
1.11	.124	.222	.004	none	102.0	764	.....	1031	no	10	Secure another water for school.
1.97	.....	.....	tr	4.0	14.8	.....	.....	.....	no	425	Usable.
2.25	.134	.006	.010	2.0	331.0	518	.....	1758	no	1600	Remove pollution.
2.33	.126	.062	.006	tr	298.4	531	.....	.....	in 50cc	650	Abandon.
2.54	.074	.002	.008	12.0	67.5	265	.....	682	yes.	2300	Unsafe.
2.22	.122	.022	.004	6.0	86.2	430	.....	1376	no	250	Abandon.
1.40	.292	.674	.020	6.2	15.5	329	.....	518	no	900	Not potable.
8.50	.364	.024	.004	2.0	3.9	129	.....	.....	no	36500	Not potable.
9.12	1.796	1.180	tr	none	.....	.....	.....	.....	.....	.....	Considerable organic mat'r
4.82	.....	.....	.018	10.0	73.6	.....	.....	.....	.....	.....	Polluted.
5.53	.....	.....	.014	12.0	23.6	.....	.....	.....	.....	.....	Polluted.
1.41	.....	.....	tr	6.0	75.4	.....	.....	.....	.....	.....	Usable. (?)
1.75	.....	.....	none	8.0	40.6	.....	.....	.....	.....	.....	Usable. (?)
1.70	.....	.....	none	8.0	61.4	.....	.....	.....	.....	.....	Usable. (?)
1.85	.....	.....	none	6.0	61.0	.....	.....	.....	.....	.....	Usable. (?)
5.40	.268	.426	tr	none	39.4	334	.....	1520	no	10	Undesirable.
1.45	.022	.008	.002	4.0	18.7	166	.....	342	no	34	Potable.
1.65	.....	.....	tr	4.0	20.0	.....	.....	.....	no	20	Potable.
4.26	.122	.084	tr	none	22.5	31	.....	168	yes	1500	Polluted.
.55	.014	.002	none	none	35.8	317	.....	818	no	500	Usable.
2.80	.168	.008	tr	16.0	48.5	226	.....	565	no	750	Advised abandon.
.29	.028	.114	.002	tr	3.5	230	.....	324	no	550	Usable.
2.60	.120	.012	tr	6.0	51.7	341	.....	638	no	3000	Abandon.
4.70	.406	.010	1.000	tr	22.8	228	.....	366	yes	11000	Polluted.
.97	.072	.132	.002	4.0	60.0	240	.....	755	no	85	Advise cleaning.
1.31	.622	.052	.090	13.0	50.5	189	.....	586	yes	3700	Polluted.
.44	.030	.374	none	none	19.7	187	.....	1461	no	42	Usable.
.29	.036	.378	.002	none	19.5	182	.....	1483	no	90	Usable.
.53	.038	.410	tr	none	14.0	182	.....	1240	no	180	Usable.
.29	.044	.168	none	none	14.0	244	.....	1135	no	425	Usable.
1.00	.026	.240	tr	none	4.0	421	.....	694	no	7	Suitable for drinking.
.48	.026	.010	none	6.0	5.8	262	22	381	no	1700	Usable, with undesirable features.
.22	.054	.026	tr	.4	5.4	299	.....	480	no	12	Potable.
.94	.050	.006	tr	none	45.2	478	.....	718	no	325	O. K. Hard.
.92	.....	.....	none	6.0	30.9	.....	.....	.....	no	1300	Usable.
1.75	.050	.004	.003	7.0	54.2	430	.....	907	no	24000	Usable, but undesirable
.....	.....	.....	.....	.....	.....	.....	.....	.....	no	61000	Not cause typhoid.
1.61	.031	.520	tr	none	51.2	333	.....	902	no	11	Usable.
.33	.050	.780	.003	none	8.3	337	.....	1335	no	325	Usable.
.85	.024	.002	.010	none	23.5	185	.....	455	no	50	Potable.
.68	.034	.008	tr	14.0	48.0	434	.....	946	no	550	Usable but undesirable.
.85	.048	.022	.006	none	83.5	425	.....	744	no	180	Usable. Protect.

EXAMINATIONS OF MISCELLANEOUS WATERS FROM

PARTS PER

Sample Number.	Locality of Sample.	Date collected.		Cause for Examination.	Source of Sample.	Color.	Turbidity.	Sediment.	Odor.
		Month.	Day.						
4179	Groveport.	12	19	Typhoid	Dug well.	30	20	s.	earthy
3425	Hamilton-Colu'b.	6	11	Typhoid	Dug well.	none	tr	none	none
3426	Hamilton-Colu'b.	6	11	Typhoid	Cistern.	40 off	tr	none	none
3716	Harrison	16	7	Pres. Sup.	Drilled well. .	tr	none	none	none
3849	Ironton	7	25	Typhoid	Driven well. .	20	160	dis't	faint
4137	Ironton	10	31	Typhoid	Driven well. .	none	none	none	faint
3509	Jefferson	12	11	Typhoid	Dug well.	none	tr	tr	ft. earthy
3553	Jefferson	3	7	Quality.	Drilled well. .	10	10	v. s.	ft. earthy
3586	Jefferson	4	4	Quality.	Drilled well. .	10	15	v. s.	faint oily
3856	Jefferson	7	28	Quality.	Drilled well. .	20	18	s.	none
4098	Jerry City.	10	19	Typhoid	Dr'd & dug wel	10	20	distinct	none
4099	Jerry City.	10	19	Typhoid	Dug well.	10	none	none	none
4072	Knox-Berlin	9	25	Typhoid	Dug well.	tr	none	none	faint
4151	Lisbon	11	7	Typhoid	Dug well.	8	tr	tr	earthy.
3938	Malta.	8	31	Typhoid	Dug well.	10	none	none	very faint
4114	Malta.	10	27	Typhoid	Driven well. .	tr	none	none	none
3932	Marietta.	8	26	Typhoid	Spring.	none	tr	v. s.	none
4015	Middleport.	9	13	Typhoid	Dug well.	15	none	none	none
4016	Middleport.	9	13	Typhoid	Cistern.	20	trace	v. s.	none
4017	Middleport.	9	13	Typhoid	Cistern.	21	trace	v. s.	faint
4019	Middleport.	9	13	Typhoid	Dug well.	10	tr	tr	none
4050	Middleport.	9	19	Typhoid	Cistern.	25	tr	tr	none
4051	Middleport.	9	19	Typhoid	Dug well.	25	40	slight	ft. earthy
4052	Middleport.	9	19	Typhoid	Cistern.	40	none	none	peculiar
3796	Minerva	6	30	Typhoid	Spring.	none	none	none	none
3797	Minerva	6	30	Typhoid	Driven well. .	trace	none	none	none
4078	Mt. Sterling.	9	30	Typhoid	Dug well.	10	18	slight	earthy.
3857	Mt. Vernon.	8	5	Quality.	Well.	25	trace	none	ft. sulphur
3858	Mt. Vernon.	8	5	Quality.	Well.	25	trace	ve'y sl'g	faint
3859	Mt. Vernon.	8	5	Quality.	Well.	25	475	distinct	earthy
3860	Mt. Vernon.	8	5	Quality.	Spring.	10	none	none	none
4087	Mt. Victory.	10	10	Typhoid	Driven well. .	15	20	slight.	vegetative
4108	Muskingum-Blue Rock.	10	24	Typhoid	Dug well.	tr	none	tr	faint
3587	Muskingum-Rich Hill.	4	5	Typhoid	Dug well.	tr	20	v. s.	vegetative
3463	Musking m-Union	1	27	Sickness	Spring.	10	tr	tr	none
4088	Newcomerstown.	10	10	Typhoid	Driven well. .	none	none	none	none
4089	Newcomerstown.	10	10	Typhoid	Driven well. .	none	none	none	faint
4090	Newcomerstown.	10	10	Typhoid	Driven well. .	none	none	none	faint
4099	New Lexington.	9	12	Typhoid	Dug well.	10	tr	slight.	none
4058	Orangeville.	9	17	Typhoid	Dug well.	10	none	tr	none
3472	Ottawa.	1	27	Typhoid	Driven well. .	10	none	tr	ft. leather
3574	Oxford.	3	24	Typhoid	Dug well.	10	tr	tr	very faint
3744	Pandora.	1	21	Typhoid	Drilled well. .	20	112	v. s.	faint
3745	Pandora.	1	21	Typhoid	Dug well.	15	tr	tr	none
3746	Pandora.	1	21	Typhoid	Drilled well. .	15	none	tr	none
4177	Pataskala.	12	13	Typhoid	Dug well.	30	20	s.	peculiar
3863	Perry-Hopewell	8	10	Typhoid	Dug well.	15	tr	none	none
3873	Perry-Hopewell.	8	14	Typhoid	Dug well.	10	none	none	faint earthy.
3874	Perry-Hopewell.	8	14	Typhoid	Drilled well. .	25	35	cons.	faint earthy.
4180	Perry-Hopewell.	12	18	Typhoid	Spring.	10	none	none	earthy
3876	Perry-Reading	8	18	Typhoid	Spring.	10	10	tr	faint
4100	Perry-Reading.	10	20	Typhoid	Dug well.	none	tr	tr	tr
4106	Perry-Reading.	10	24	Typhoid	Bored well. .	tr	tr	tr	peculiar
4112	Perry-Reading.	10	24	Typhoid	tr	tr	tr	tr	none
4150	Preble-Monroe.	11	7	Sickness	Dug well.	8	tr	none	none
4101	Preble-Somers.	10	20	Typhoid	Dug well.	none	none	tr	woody
3844	Put-in-Bay.	7	19	Quality.	Well.	tr	tr	tr	tr
3845	Put-in-Bay.	7	19	Quality.	Drilled well. .	tr	tr	tr	tr
3846	Put-in-Bay.	7	19	Quality.	Drilled well. .	20	none	none	offensive.
3847	Put-in-Bay.	7	19	Quality.	Drilled well. .	17	10	tr	none
4033	Putnam-Mont'rey	9	13	Typhoid	Dug well.	20	20	s.	none
4034	Putnam-Mont'rey	9	13	Typhoid	Dug Well.	25	15	v. s.	none
3724	Ravenna.	6	9	Quality.	Well.	10	none	none	none
3754	Ravenna.	6	23	Quality.	Well.	10	none	tr	none
3635	Reading.	5	8	Typhoid	Dug well.	10	none	tr	ft. earthy
3636	Reading.	5	8	Quality.	Dug well.	10	none	tr	ft. earthy
3933	Rushsylvania.	8	30	Quality.	Well 1.	10	90	distinct	faint.
3934	Rushsylvania.	8	30	Quality.	Well 2.	10	110	distinct	faint

PRIVATE SUPPLIES AND SPECIAL SOURCES—Continued.

MILLION.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incinerating Constituents.	Total Solids.	Color Present in 1 cc.	Bacteria per cc.	Remarks.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.							
1.58	.160	.004	.044	28.0	120.0	346	.....	1431	no	5500	Unsafe.
1.05	.040	.000	tr	26.0	140.0	222	.....	388	no	1208	Abandon.
.....	002off	tr	.....	.....	.....	.....	.....	.....	no	.....	Usable.
29	.012	.006	none	2.0	10.3	335	40	421	no	650	Usable.
1.00	.028	.310	.002	none	12.5	156	.....	308	no	300	O. K. now.
.52	.006	tr	.020	6.0	6.5	149	.....	268	no	800	Protect.
2.07	.102	.018	none	2.0	5.1	469	.....	526	no	800	Usable. Protect
.42	.048	.462	tr	none	21.5	80	.....	322	no	300	Potable.
.55	.058	.692	.012	none	54.0	310	.....	414	no	6500	Usable.
.90	.060	.522	none	none	18.0	257	.....	370	no	650	Usable.
1.10	.038	.008	none	none	6.0	358	.....	694	no	250	Usable.
3.15	.066	.012	none	none	88.4	244	.....	717	no	425	Usable.
.22	.020	.002	none	none	1.3	190	.....	233	no	90	Usually good.
1.08	.044	.004	.022	9.0	159.0	122	.....	645	yes	475	Condemn.
1.12	.094	.022	.004	7.0	33.5	293	.....	550	yes	1600	Polluted.
.49	.018	.010	none	10.0	22.5	208	.....	492	no	15	Usable. Protect.
.20	.052	.012	tr	7.0	36.7	194	.....	558	no	.....	Undesirable.
.52	.044	.008	none	8.0	43.8	27	.....	1650	no	450	Not desirable.
.70	.032	.006	tr	1.0	tr	14	.....	43	no	55	Potable.
1.48	.042	.002	none	none	1.0	47	.....	98	no	55	Potable.
.38	.....	tr	tr	34.0	145.4	.....	.....	.....	no	650	Advise close.
3.32	.084	.076	.012	none	2.0	.....	.....	.....	no	275	Clean.
.13	.022	.008	.024	10.0	59.3	21	.....	688	no	1400	Condemn.
6.83	.150	.060	.012	16.0	5.3	34	.....	86	no	300	Clean, inspect for leaks.
.45	.008	none	none	6.0	11.5	78	.....	211	no	95	O. K. now.
.40	.010	.002	.016	4.0	9.8	358	.....	572	no	200	Past pollution.
.73	.064	.672	tr	none	1.5	380	.....	652	.....	.....	Hard.
.40	.028	.068	tr	none	6.5	108	none	150	no	140	Suitable.
.70	.068	.028	.010	tr	3.0	70	.....	5	no	120	Usable.
.20	.020	.014	none	none	2.2	68	7	500	no	13	Usable.
.30	.020	.014	none	2.0	3.5	12	5	68	no	180	Clean.
1.16	.022	.226	.004	none	5.0	136	.....	1510	no	275	Usable.
.....
.87	.026	.002	.004	6.0	69.5	316	.....	726	no	1300	Usable but abandon.
.....
.62	.056	.120	.002	none	8.6	282	.....	296	no	230	Usable.
.39	.028	.008	tr	3.0	3.2	133	.....	176	no	700	Potable.
.31	.016	.004	none	4.0	5.8	166	.....	284	no	18	Usable.
.46	.012	.006	none	8.0	28.0	146	.....	372	no	350	Usable, objectionable on account of past pollution
.....
.42	.018	.006	tr	6.0	11.8	263	.....	473	no	230	Past pollution.
.21	.010	.002	.002	tr	18.0	122	.....	320	no	250	Usable.
.19	.006	tr	none	none	3.0	219	.....	293	.....	375	Potable.
1.09	.032	.304	none	none	27.8	143	.....	808	no	180	Potable.
2.29	.122	.014	tr	10.0	45.4	315	.....	626	no	2500	Abandon.
.64	.020	.022	.010	none	3.0	374	.....	378	no	17	.....
.49	.024	.004	tr	3.0	10.8	280	.....	408	no	65	Usable.
.83	.028	.054	none	none	3.2	352	.....	380	no	22	.....
1.67	.124	.016	tr	none	24.2	250	.....	434	no	200	O. K. Protect.
1.15	.034	.010	m retr	6.0	15.1	184	.....	595	no	800	Undesirable.
.65	.038	.016	.009	4.0	24.1	275	.....	478	no	6200	Undesirable.
.70	.032	.020	none	tr	7.2	116	.....	214	yes	1200	Not safe.
.27	.044	.004	tr	3.0	2.0	215	.....	304	no	12000	Usable.
.45	.016	.002	tr	3.0	3.8	193	.....	199	no	60	O. K.
.95	.022	.008	.008	18.0	112.0	99	.....	664	yes	600	Condemn.
.59	.020	.012	none	tr	2.2	177	.....	271	yes	.....	Potable.
.52	.012	.012	tr	2.0	2.8	7	.....	67	no	250	Potable.
.74	.030	.008	.040	4.0	21.6	265	.....	450	no	160	Abandon.
1.04	.020	.006	none	6.0	150.0	295	.....	808	no	350	Usable.
.....	.....	.....	.....	.....	.....	.....	.....	.....	no	25	Usable, clean surface.
.....	.....	.042	none	67.0	357	.....	.....	.....	yes	600	Polluted.
2.60	.202	.006	.032	8.0	140.0	330	13	753	yes	1200	Polluted.
.90	.078	.002	none	none	23.8	382	11	526	no	14	Usable.
.92	.022	.196	tr	none	6.0	339	.....	1003	no	300	Usable.
.20	.022	.166	tr	none	5.3	351	.....	1630	no	600	Usable.
1.68	.204	.008	tr	6.0	55.8	324	90	676	.....	.....	Usable.
.58	.208	.004	.002	6.0	54.1	338	138	686	no	170	Usable.
.80	.078	.016	.002	6.0	24.0	281	.....	537	yes in	50	Usable but undesirable.
.60	.080	.014	.003	22.0	122.6	270	.....	1027	no	850	Very undesirable, abandon
.53	.072	.520	.002	none	.....	296	.....	1404	no	3200	Usable.
.53	.064	.522	.002	none	.....	323	.....	1567	no	150	Usable.

EXAMINATIONS OF MISCELLANEOUS WATERS FROM

PARTS PER

Sample Number.	Locality of Sample.	Month.	Date collected.	Cause for Examination.	Source of Sample.	Color.	Turbidity.	Sediment.	Odor.
3935	Rushsylvania.....	8	30	Quality.....	Well 3.....	15	350	decided	faint
4066	Salem.....	9	7	Typhoid.....	Drilled well.....	15	40	s.	faint
4084	Seneca-London.....	10	3	Typhoid.....	Dug well.....	none	tr	tr	peculiar
4085	Seneca-Jackson.....	10	3	Typhoid.....	Dug well.....	none	none	none	none
4093	Seneca-Jackson.....	10	11	Typhoid.....	Drilled well.....	20	tr	tr	none
3920	Shelby.....	*8	27	Typhoid.....	.....	.....	.....	.....	.....
3921	Shelby.....	8	29	Typhoid.....	Dug well.....	15	tr	tr	faint
3922	Shelby.....	8	29	Typhoid.....	Dug well.....	20	tr	tr	trace
4063	Sherodsville.....	9	21	Typhoid.....	Cistern.....	25off	tr	tr	none
4064	Sherodsville.....	9	21	Typhoid.....	Drilled well.....	10	tr	tr	faint
4091	Sherodsville.....	10	11	Typhoid.....	Drilled well.....	10	tr	tr	ft. earthy
3556	Somerset.....	3	10	Typhoid.....	Dug well.....	15	tr	tr	leather
4011	Somerset.....	9	12	Typhoid.....	Dug well.....	10	tr	tr	none
4165	Steubenville.....	11	29	Typhoid.....	Spring.....	10	none	none	earthy
3572	Sullivan.....	3	21	Quality.....	Well.....	tr	tr	tr	none
3589	Sullivan.....	4	5	Mineral analysis	Drilled well.....	.....	10	v. s.	faint
4010	Thornville.....	9	12	Mineral analysis	Drilled well.....	20	125	cons.	none
3427	Tiffin.....	1	11	*	Drilled well.....	20	20	s.	none
3598	Toronto.....	4	13	Typhoid.....	Spring.....	tr	none	none	faint
4069	Trimble.....	9	26	Typhoid.....	Dug well.....	10	tr	v. s.	none
4070	Trimble.....	9	26	Typhoid.....	Dug well.....	tr	tr	tr	none
4071	Trimble.....	9	26	Typhoid.....	Dug well.....	tr	none	tr	faint
3650	Upper Sandusky.....	5	16	Typhoid.....	Dug well.....	tr	none	v. s.	none
4174	Utica.....	12	12	Typhoid.....	.....	15	tr	tr	earthy
4175	Utica.....	12	12	Typhoid.....	Drilled well.....	15	tr	tr	earthy
4176	Utica.....	12	12	Typhoid.....	.....	40off	s.	s.	earthy
4032	Van Wert Jacks'n.....	9	13	Typhoid.....	Dug well.....	25	s.	v. s.	very faint
3429	Warren.....	1	12	Quality.....	Drilled well.....	10	.....	none	none
3581	Warren.....	3	28	Quality.....	Dug well.....	10	s.	v. s.	none
4147	Washington C. H.....	11	7	.....	Drilled well.....	tr	v. s.	v. s.	none
4148	Washington C. H.....	11	7	.....	Dug well.....	10	tr.	none	none
3710	Waynesburg.....	6	6	Quality.....	Spring.....	tr	none	none	none
3809	W. Alexandria.....	4	4	Pollution.....	Dug well.....	tr	.....	.....	.....
3810	W. Alexandria.....	4	4	Pollution.....	Dug well.....	tr	.....	.....	.....
3811	W. Alexandria.....	4	4	Pollution.....	Dug well.....	tr	.....	.....	.....
3812	W. Alexandria.....	4	4	Pollution.....	Dug well.....	tr	.....	.....	.....
3813	W. Alexandria.....	4	4	Pollution.....	Dug well.....	10	.....	.....	.....
3814	W. Alexandria.....	4	4	Pollution.....	Dug well.....	10	.....	.....	.....
3815	W. Alexandria.....	4	4	Pollution.....	Dug well.....	10	.....	.....	.....
4170	Wood-Perry.....	12	7	Typhoid.....	Drilled well.....	15	8	s.	faint
3532	Wood-Middleton.....	12	24	Typhoid.....	Bored well.....	10	none	v. s.	none
3861	Zanesville.....	8	10	Quality.....	Drove well.....	10	tr	tr	none
3862	Zanesville.....	8	10	Quality.....	Dug well.....	tr	none	none	none
4054	Zanesville.....	9	20	Typhoid.....	Dug well.....	20	15	v. s.	faint
4055	Zanesville.....	9	20	Typhoid.....	Dug well.....	10	none	none	none
4056	Zanesville.....	9	20	Typhoid.....	Dug well.....	10	none	none	none
4057	Zanesville.....	9	20	Typhoid.....	Dug well.....	10	none	tr	faint

*Date received

*3427. Examined by request on account of possibility of being considered as an addition to the public supply.

PRIVATE SUPPLIES AND SPECIAL SOURCES—Concluded.

MILLION.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incrusting Constituents	Total Solids.	Color Present in 1 cc.	Bacteria per cc.	Remarks.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.							
.34	.126	.958	none	none	9.5	369	.....	2671	no	3800	Usable.
.20	.010	.060	tr	none	2.5	417	.....	426	no	2900	Usable.
1.95	.104	.160	.016	tr	5.2	316	.....	470	yes	700	Polluted. Clean.
1.27	.098	.010	.018	40.0	192.12	249	.....	1407	yes	1600	Condemn.
.39	.020	.104	tr	none	2.7	266	.....	375	no	70	Potable.
.....	.....	.....	.....	.....	.....	.....	.....	.....	no	.....	Not receiving pollution.
.88	.044	.002	.005	2.0	38.0	258	.....	693	no	500	Undesirable.
.34	.032	.006	tr	7.0	43.5	277	.....	612	yes	950	Unsafe.
2.13	.078	.368	.180	5.0	2.0	30	.....	102	no	65	Unsuitable for drinking.
.25	.014	.004	.002	5.0	46.0	41	.....	580	no	150	Potable.
.50	.026	.008	.016	10.0	34.7	34	.....	448	yes	325	Polluted.
2.60	.204	.102	.006	6.0	30.0	none	.....	266	no	2500	Abandon.
1.54	.070	.004	.036	17.0	168.0	129	.....	1260	no	750	Abandon.
.81	.036	.130	.008	2.0	16.0	31	20	113	no	130	Undesirable.
2.18	.096	3.328	none	none	1350.0	523	.....	4434	no	11	Undesirable, domestic use.
.....	.....	.....	none	none	1283.0	536	none	4418	.....	.....	Good for medicinal uses
.23	.024	.062	.008	tr	9.6	292	.....	496	no	3	Usable.
.32	.016	.042	tr	none	1.0	373	220	697	no	10	Usable but hard.
.42	.026	.054	none	9.0	23.7	58	.....	264	no	8000	Usable.
2.98	.064	.002	none	none	18.7	25	.....	839	no	400	Usable.
.42	.026	.004	.003	4.0	140.0	151	.....	712	no	750	Undesirable.
.72	.010	.012	tr	2.0	29.5	261	.....	907	yes	3400	Abandon.
1.80	.102	.048	.048	21.0	75.0	164	.....	808	yes	350	Condemn.
.76	.074	.002	tr	16.0	42.8	428	.....	922	no	800	Usable.
.45	.048	.006	.110	10.0	35.5	340	.....	791	no	75	Unsuitable.
.20	.060	.116	tr	none	25.0	.....	.....	.....	no	5	Potable.
1.72	.078	.126	.006	2.0	31.5	309	.....	921	no	2400	Close.
2.69	.042	.250	none	10.0	434.6	458	172	1237	no	180	Undesirable.
4.06	.172	.028	tr	11.0	72.0	221	.....	926	no	400	Usable. Protect.
.96	.016	.002	.006	none	9.0	329	40	540	no	30	Safe.
1.56	.046	.004	none	none	27.0	289	.....	670	no	550	Usable.
.80	.024	.022	.002	6.0	10.2	43	43	209	no	47	Polluted. Hard.
.87	.....	.....	.008	24.0	32.1	.....	.....	.....	no	250	Past pollution.
.98	.....	.....	.010	13.0	21.0	.....	.....	.....	no	1000	Past pollution.
1.87	.....	.....	none	12.0	60.7	.....	.....	.....	no	8000	Undesirable.
1.36	.....	.....	none	30.0	62.5	.....	.....	.....	no	425	Undesirable.
.83	.....	.....	none	36.0	32.0	.....	.....	.....	no	75	Undesirable.
1.01	.....	.....	.002	6.0	43.3	.....	.....	.....	no	2100	Undesirable.
1.05	.....	.....	.002	7.5	38.6	.....	.....	.....	no	650	Undesirable.
.80	.116	.002	tr	6.0	1.9	230	.....	370	no	140	Usable.
2.65	.078	.028	.002	4.0	45.7	190	.....	868	no	1600	Undesirable.
.70	.022	.020	.020	5.0	47.0	315	.....	1030	no	4100	Polluted.
1.15	.202	1.196	.012	7.0	72.2	242	.....	913	yes	600	Condemn.
1.36	.084	.014	.024	16.0	55.3	272	.....	1009	yes	2900	Condemn.
.48	.022	.018	.088	8.0	116.2	320	.....	1187	no	230	Close.
.34	.016	.006	.006	4.0	23.7	159	.....	420	no	275	Abandon
.68	.016	.000	.136	6.0	30.6	262	.....	688	yes	22000	Condemn.

CITY AND VILLAGE
BOARDS OF HEALTH
NAME OF HEALTH OFFICER

Corrected to April 1, 1905

HEALTH OFFICERS OF CITIES AND VILLAGES.

Place.	Health Officer.
Aberdeen	Dr. S. A. Laughlin
Ada	W. H. Morrow
Adamsville	S. J. Lane
*Addyston (Sekitan P. O.)	
Adelphi	W. S. Koch
Adrian	
Agosta P. O. (New Bloomington) ..	
Akron	Dr. A. A. Kohler
Albany	Dr. A. F. Holmes
Alexandria	
Alger	Dr. U. P. L. Vermillion
Allentown	
Alliance	Dr. J. A. Roach
Alvordton	Dr. T. E. Schrider
Amanda	George Boerstler
*Amelia	Charles Coleman
Amesville	J. C. Snedeker
Andover	F. L. Sargent
*Anna	Dr. D. R. Milliette
*Ansonia	Dr. C. I. Stephen
Antioch	
Antwerp	E. K. Terwilliger
Apple Creek	Dr. W. H. Winkler
*Arcadia	W. W. Moore
Arcanum	James Wallace
Archbold	August Ruhley
Arlington	Solomon Bates
*Arlington Heights	H. R. Veddern
Arnettville (Pittsburg P. O.)	
Ashland	Dr. F. V. Dotterweich
Ashley	Dr. M. B. McGonigle
Ashtabula	Dr. A. W. Hopkins
Ashville	John Johnson
Athalia	
Athens	Dr. J. M. Higgins
*Attica	Dr. C. A. Force
Avon	Dr. John R. Pipes
*Bainbridge	Dr. R. H. McKee
*Bairdstown	A. W. Solomon
Bakersville	Dr. J. D. Lower
Baltimore	L. K. Davis
*Barberton	Dr. W. A. Mansfield
Barnesville	Dr. D. O. Sheppard

* In lieu of a board of health.

Place.	Health Officer.
Barnhill	John Stevenson
Batavia	C. H. Crane
Batesville	Caleb Mercer
Beach City	Theodore F. Stamm
Beallsville	A. C. Harper
*Beaver	Joseph M. Swan
Beaver Dam	Dr. J. B. Haines
Bedford	Thomas E. Mathews
Bellaire	Dr. D. W. Boone
Bellbrook	R. M. Martz
Belle Center	J. T. Ewing
Bellefontaine	Dr. J. S. Deemy
Belleville	Dr. C. E. Hunter
Bellevue	Charles Bilger
*Belmont	H. O. Gatten
Belmore	Dr. G. B. Adrian
*Beloit	R. R. Boyle
Belpre	Joseph Sharp
Benton Ridge	Dr. R. D. Whistler
Berea	T. L. McKean
*Berlin Heights	Dr. G. W. Hine
*Berlin X Roads	Henry Davis
*Berne P. O. (Carlisle)	W. R. Bramhall
*Bethel	Dr. W. E. Thompson
*Bettsville	J. C. Brockman
Beverly	George A. Radenbach
*Blakeslee	James B. Lauchlin
Bloom Center	Dr. O. C. Wilson
*Bloomdale	G. W. Urie
Bloomfield (Bloomington P. O.) ..	
*Bloomingburg	H. W. Worrell
Bloomington P. O.	E. R. Blackburn, Clerk
Bloomville	Dr. T. C. Loose
Bluffton	Dr. John J. Sutter
*Bolivar	Conrad H. LeBold
Boston (Owensville P. O.)	
*Botkins	Presley C. Lawhead
Bourneville	Dr. J. A. VanWinkle
*Bowerston	Joseph R. Penn
*Bowersville	J. E. Steward
Bowling Green	J. B. Miller
Bradford	John Tinkler
*Bradner	O. J. Mitchell
*Bratnahl	J. G. Newkirk
*Bremen	Dr. F. P. Strayer
Bridgeport	Dr. W. M. Oates
Brilliant	A. McIntire
Brinkhaven P. O. (Gann)	J. T. Dewitt, Mayor
Brooklyn P. O. (So. Brooklyn)	R. E. Stickney
*Brooklyn Heights	Joseph E. Richardson
Brookville	Dr. H. W. McMillen

* In lieu of a board of health.

Place.	Health Officer.
*Broughton	J. L. Boroff
Bryan	Nicholas Vineyard
Buchtel	A. P. Lee
Buckeye City	F. M. Welker
Buckland	
Bucyrus	Dr. A. H. McCrory
Buffalo (hamlet)	Joseph Oldroyd
*Burbank	A. W. Hoffman
Burkettsville	Dr. B. G. Inman
Burton	Dr. A. D. Warner
*Butler	Dr. E. G. Rummel
Butlerville	
Byesville	C. C. Large
*Cadiz	Dr. S. B. McGavran
Calais	J. R. Johnson, Tp. H. O.
Caldwell	Dr. John L. Gray
Caledonia	Noah Lee
Cambridge	T. C. Stanley
Camden	Dr. W. E. Pryor
Canal Dover	Herman F. Eppens
Canal Fulton	William Logan
Canal Winchester	Dr. W. S. Gayman
Canfield	A. D. Woods
*Cannelville (Dillons P. O.)	
Canton	Dr. A. V. Smith
*Cardington	Dr. Carl T. Warmeling
*Carey	Joseph F. Wonder
Carlisle (Berne P. O.)	
Carroll	Dr. H. A. Brown
Carrollton	Dr. A. H. Hise
*Carthage	Samuel B. Gilchrist
*Casstown	Dr. W. W. Baker
Catawba	Dr. J. D. Thomas
Cecil	Dr. S. E. DeMuth
Cedarville	Arthur McFarland
Celina	Dr. Joseph Sager
Centerburg	L. B. Evans
*Centerville	Dr. B. W. Dudley Keever
Centerville (Thurman P. O.)	
Chagrin Falls	W. J. Clark
*Chambersburg (Eureka P. O.)	
Chardon	P. F. Walthour
*Chatfield	Samuel Lutz
*Chester Hill	William Johnson
Chesterville	Dr. W. C. Hodges
*Cheviot	Charles Craig
Chicago Junction	Dr. A. R. Kauffman
Chickasaw	H. S. Schaefer
Chillicothe	Dr. W. S. Scott
Cincinnati	Dr. Clark W. Davis
Circleville	Enoch Coffland

* In lieu of a board of health.

Place.	Health Officer.
Clarington	C. T. Reilly
*Clarksburg	Asa J. Tharp
*Clarksville	Ezekiel Cast
Cleveland	Dr. Martin Friedrich
*Cleveland Heights	Dr. W. E. Shackleton
*Cleves	Dr. Christian F. Schiele
Clifton	Dr. J. H. Harris
Clinton (Fitchville, P. O.)	
Clyde	F. G. Tuttle
Coal Grove	Dr. W. M. Shattuck
*Coalton	J. C. Duncan
Coldwater	Dr. C. F. Bollman
College Corner	
College Hill	J. E. Deininger
*Collinwood	Dr. W. H. Williams
Columbiana	George Roninger
Columbus	Dr. McKendree Smith
*Columbus Grove	J. F. Bogart
*Commercial Point	John Chenault
Congress	Dr. George C. Essick
Conneaut	Dr. O. N. Warner
*Continental	G. H. Laird
Convoy	C. D. Sidle
Coolville	Dr. A. M. Frame
Copley	O. E. Arnold
*Corning	Wm. Anderson
Cortland	Dr. W. F. Horton
Corwin	
Coshocton	Dr. J. E. Foster
Covington	Wm. E. Westfall
Crestline	Dr. C. A. Marquart
*Creston	C. A. Mellen
Cridersville	F. L. Newcomer
Crooksville	U. M. Cooke
*Croton P. O. (Hartford)	Dr. C. B. Hempstead
*Crown City	J. V. Stevers
Cumberland	Hayden Martin
*Custar	Edward France
*Cuyahoga Falls	W. W. Scupholm
Cygnut	D. J. Baker
*Dalton	Dr. D. Y. Roebuck
Danville	Dr. C. R. Bradfield
Darbyville	M. N. Bowman
Dayton	Dr. C. W. King
Deavertown	Theodore Welch
Deerfield (So. Lebanon P. O.)	
Deersville	Dr. Frank James
Defiance	Dr. J. D. Westrick
*DeGraff	John W. Hendershott
Delaware	Dr. O. W. Bonner
Delhi	M. F. Andrew

* In lieu of a board of health.

Place.	Health Officer.
*Dell Roy	S. W. Snee
Delphos	Dr. N. E. Brundage
Delta	Dr. Wm. Ramsey
Dennison	Dr. L. H. Hughes
*Deshler	Isaac Collier
*Dexter City	Dr. E. E. Coborn
*Dillons P. O. (Cannellville)	Dr. D. W. Trout
Dillonvale	Dr. J. C. Jones
Donnelsville	Dr. Horace Heistand
*Doylestown	F. C. Hummel
Dresden	C. W. Carter
*Dublin	Dr. L. McKittrick
*Dunkirk	Dr. Harry C. Neff
*Dupont	C. L. Speck
Fast Cleveland	J. H. Stamberger
East Fairfield	Dr. G. H. Albright
East Liverpool	Dr. C. B. Ogden
East Palestine	L. Neville
*East Springfield	Dr. H. L. Fiscus
Eaton	John McDonald
Edgerton	Dr. C. Hathaway
*Edison	Dr. John H. Jackson
Edon	H. F. Alwood
Eldorado	George W. McCoy
Elgin	Dr. L. P. Jackson
Elida	Dr. S. A. Hitchcock
*Elmore	Dr. R. A. Willett
Elmwood Place	Dr. E. T. Busching
Elyria	Dr. George E. French
Empire	John Hunter
Enon	James P. Pierce
*Eureka P. O. (Chambersburg)	William T. Rouse
Fairfield	
Fairmount (hamlet)	L. Hunter, Clerk
*Fairport	J. H. Werbeach
Fairview	C. M. Ault
*Farmersville	W. H. Evans
Fayette	Albert Ford
Fayetteville	
*Felicity	Charles N. Crawford
*Fernbank	James E. Hickman
Findlay	Amos Beardsley
Fitchville P. O. (Clinton)	
Five Points	
Fletcher	Dr. J. B. Barker
Florida	William Thompson
Flushing	Dr. Thos. Blackwood
Forest	John Handchy
Fort Jennings	Dr. J. E. Stephan
Fort Recovery	Dr. W. R. Taylor
Fostoria	W. N. Caldwell

* In lieu of a board of health.

Place.	Health Officer.
*Frankfort	John A. Davis
*Franklin	John B. Miller
*Frazeysburg	Carlos L. Butler
Fredericksburg	Dr. J. F. Long
Fredericktown	Thomas Burke
*Freeport	Thomas A. Boyd
Freeport (Prairie Depot P. O.)	
Fremont	Dr. O. C. Vermilya
Fultonham P. O. (Uniontown)	Dr. C. Z. Axline
Gahanna	D. L. Stygler
Galion	Dr. H. H. Hartman
Gallipolis	Dr. Chas. B. Robinson
Gambier	Dr. A. D. Welker
Gann (Brinkhaven P. O.)	
*Garrettsville	Dr. George R. French
Geneva	Dr. F. C. Smith
Genoa	Chas M. Siglar
*Georgetown	W. P. Bradford
Germantown	William Schaeffer
Gettysburg	
*Geyer	James Snyder
Gibsonburg	W. O. Dipman
Gilboa	Dr. Bruce Snodgrass
Girard	Dr. F. C. Hunt
Glandorf	Dr. H. M. Northam
*Glendale	Clifford Allen
Glenmont	Geo. L. Robinson, Mayor
Glenville	B. F. Carpenter
Glouster	Dr. Henry G. Gibson
Gnadenhutten	
Good Hope	D. C. Somers
*Gordon (hamlet)	H. Z. Silver
*Grafton	John Cahill
*Grand Rapids	J. H. Williams
Grand River P. O. (Richmond)	H. S. Barton
Granville	Dr. W. E. Clemons
Gratis P. O. (Winchester, Preble Co.)	Fred Boesenberg
Graysville	W. E. Barker
*Green Camp	G. W. Collins
*Greenfield	C. S. Clouser
Green Spring	Dr. R. D. Reynolds
Greenville	Dr. Jno. D. Kerlin
Greenwich	Wilber Holden
Grove City	M. L. Harsh
Groveport	Dr. C. R. Clement
Grover (Tiltonville P. O.)	
Grover Hill	E. L. Shaw
*Hagermans P. O.	
(Rossville, Darke Co.)	D. H. Brown
Hamden Junction	George Wilber
Hamersville	

* In lieu of a board of health.

Place.	Health Officer.
Hamilton	Dr. Mark Millikin
Hamler	William Barhite, Sr.
Hammondsville	
Hanging Rock	Joseph Kinkaid
Hanover	
Hanoverton	E. C. Lawson
Harlem Springs	
*Harrisburg	J. H. Fullen
Harrison	Abe Loos
Harrisville	W. C. Toland, Mayor
*Harrod	John Blair, Sr.
*Hartford (Croton P. O.)	
Hartwell	H. G. Gould
Harveysburg	{ Milton Hadley { Ed. Dakin, Committee
Haskins	Dr. H. J. Johnston
Haviland	
Hayesville	Dill Andress
*Hebron	Dr. O. M. Kramer
Hemlock	
Herring P. O. (Lafayette)	Dr. N. Sager, Jr.
Hicksville	Amos Farlow
*Higginsport	F. M. Cahill
Highland P. O. (New Lexington) ..	
*Hilliards	Dr. George W. Deem
Hillsboro	Dr. J. D. McBride
Hiram	Dr. F. H. Hurd
Holgate	W. S. Smith
*Hollansburg	Dr. A. W. Meek
Holmesville	C. W. McClelland
Home City	Dr. B. F. Lehman
*Hopedale	Dr. Elmer T. Kuhn
Hoytsville	Solomon Brentlinger
Hubbard	Dr. W. S. Bond
Hudson	Dr. H. C. Coolman
*Huntsville	Dr. G. W. Jones
*Huron	S. N. Lennon
Independence	
Irondale	J. W. Russell, Clerk
Ironton	Dr. E. E. Wells
Ithaca	Dr. J. C. Hamilton
Jackson	W. H. Brunton
Jacksonboro	John Stamm
*Jackson Center	Dr. A. V. Derr
Jacksonville	Dr. C. Von Scheele
Jamestown	W. F. McMillen
Jefferson	Dr. G. O. Mahaffey
*Jeffersonville	Wm. S. Reid
Jenera	C. H. Heldman
Jeromeville	
Jerry City	Austin VanBlarcum

* In lieu of a board of health.

Place.	Health Officer.
Jerusalem	J. A. Latham
*Jewett	John Wesley Lucas
Johnsonville	E. C. Hitchcock
Johnstown	Dr. J. N. Wright
Junction City	Dr. I. A. Moody
*Kalida	W. W. Dunavin
Kelleys Island	George P. Schardt
Kennedy P. O. (Kennedy Heights) .	
Kennedy Heights	
Kent	B. C. Newberry
Kenton	J. W. Hammond
Kettlerville	
Killbuck	Dr. Emil J. Heinig
Kimbolton	F. M. Fowler
Kingston	A. L. Hatcher
Kirby	Dr. E. E. Burns
*Kossuth	T. J. Barnett
Lafayette (Herring P. O.)	
LaGrange	Dr. J. W. Lindsey
Lakeside	Dr. O. L. Mapes
*Lakeview	E. D. Carr
Lakewood	Dr. Alfred W. Andersen
Lancaster	Dr. George W. O'Grady
*Larue	John Gillespie
Latty	Robert Higginbotham
Laura	Dr. S. P. Neff
Laurelville	Dr. W. D. Cain
Lebanon	Dr. A. W. Mardis
Leesburg	Dr. H. A. Beeson
*Leesville	A. R. Morrison
Leesville X Roads	
Leetonia	Dr. S. R. McCready
Leipsic	Dr. John C. McClung
Lewisburg	A. N. Cox
Lewisville	Dr. L. P. Diehl
*Lexington	Dr. J. P. Stober
Liberty Center	D. K. Bowker
Lima	Dr. A. L. Jones
*Limaville	O. P. Sebrell
Lindsey	
*Lisbon	David H. Eells
Lithopolis	F. W. Taes
Little Sandusky	
*Lockbourne	D. A. Kurtshalz
Lockington	Dr. J. Robert Caywood, Clerk
*Lockland	Harry Fogelman
*Lodi	Henry Selders
Logan	Dr. D. A. Rannells
*London	Dr. W. H. Christopher
Lorain	Dr. Edward V. Hug
Loramie	Dr. Thomas Walkup

* In lieu of a board of health.

Place.	Health Officer.
Londonville	William Conrad
Louisville	Dr. R. G. Walker
*Loveland	Dr. F. H. Lever
Lowell	A. J. Thompson
Lowellville	J. H. McWilliams
Lower Salem	J. P. Hartshorn
Lucas	Wm. Baer
Lynchburg	M. V. Nolder
Lyons	
*McArthur	George W. Partlow
McClure	E. E. Britton
*McComb	Scott W. Preble
McConnelsville	William Dille
McGuffey	Dr. J. B. K. Evans
*Macksburg	Julius B. DeLong
Madison	Dr. J. V. Winans
Madisonville	Dr. C. L. Metz
Magnetic Springs	Dr. C. L. Schwartz
Magnolia	L. H. Scheideger
*Maineville	J. G. Trimble
Malinta	M. M. Spangler
Malta	W. R. Scott
Malvern	Dr. John A. Rhiehl
Manchester	Dr. R. A. Stephenson
Mansfield	Dr. R. S. Boles
Mantua	
Marblehead	A. J. Clemons
*Marengo	I. E. Eakins
Marietta	Dr. F. S. McGee
Marion	James P. Lutz
*Marseilles	Dr. E. S. Jones
*Marshallville	E. P. Willford
*Martinsburg	Dr. N. S. Toland
Martins Ferry	R. A. Lindemuth
Martinsville	John T. Crawford
Marysville	Dr. P. D. Longbrake
Mason	Dr. C. T. Hall
Massillon	Dr. T. Clark Miller
*Maumee	Philip Hartman
Mechanicsburg	Dr. J. C. Hathaway
*Medina	Allen Pomeroy
*Melrose	T. J. Myers
*Mendon	Dr. Charles B. Harbauer
*Mentor	Dr. J. W. Lowe
Metamora	Augustus Reis
Miamisburg	Dr. A. H. Blossom
Middleburg	C. C. Heath
Middle Point	
Middleport	Dr. David Sisson
Middletown	Dr. George D. Lummis
Midland (Midland City P. O.)	

* In lieu of a board of health.

Place.	Health Officer.
Midland City P. O.	Dr. Leonidas Boulware
Midvale	
Midway (Sedalia P. O.)	
Mifflin	
Milan	Fred Collman
*Milford	Dr. Con. W. Gatch
*Milford Center	H. H. Knots
Millburg	Dr. C. M. Diebert
Milledgeville	Dr. W. T. Mathews
Miller City	F. M. Miley
Millersburg	Charles A. Estill
Milton Center	Dr. J. F. Noble
*Miltonsburg	Dr. Charles Keyser
Mineral City	C. C. White
Mineral Ridge	Dr. J. M. Elder
*Minerva	Dr. Arthur Thomas
Mingo Junction	Robert McElroy
*Minster	Robert L. Lant
Mogadore	
Monroeville	Dr. E. R. Kreider
Montezuma	Dr. L. T. Arthur
Montpelier	Dr. J. V. Lesnet
*Morristown	A. M. Pool
Morrow	A. J. Koeble
Moscow	Dr. W. S. Purkhiser
Mt. Airy	
*Mt. Blanchard	C. M. Wolford
Mt. Cory	Jacob Doty
Mt. Eaton	
*Mt. Gillead	Dr. Wm. L. Case
*Mt. Healthy	Dr. Lafayette Neufarth
*Mt. Orab	Wm. E. Bingham
Mt. Pleasant	Henry B. Mercer
*Mt. Sterling	Dr. C. T. Gallagher
Mt. Vernon	Dr. H. W. Blair
Mt. Victory	Dr. B. B. Morrow
*Mt. Washington	Dr. W. C. Langdon
Murray City	Dr. T. J. Dillinger
Mutual	C. M. Goul
Napoleon	G. W. Cocke
*Nashville	David Parks
Navarre	John Bailiss
Nelsonville	Dr. N. Hill
*Nevada	Dr. H. E. Dwire
*Neville	Dr. A. Franco Joseph
New Albany	Christopher Horiocker
New Alexandria	
Newark	Dr. Henry Day
New Athens	Dr. Albert Dickerson
New Bloomington (Agosta P. O.) ..	
*New Bremen	Dr. E. M. Phelps

* In lieu of a board of health.

Place.	Health Officer.
Newburgh	Dr. C. L. McCoy
Newburgh Heights (Willow P. O.) ..	
*New Carlisle	W. A. Higgins
Newcomerstown	William Tidrick
New Concord	Dr. Henry McCreary
*New Holland	W. R. Gordon
New Knoxville	Dr. H. E. Fledderjohann
*New Lebanon (Potsdam P. O.)	
*New Lebanon P. O.	Lutie Piatt
New Lexington (Highland P. O.) ..	
*New Lexington (Perry Co.)	J. W. Holden
New London	A. M. Turner
*New Madison	Jesse E. Jones
New Matamoras	Adam S. Miracle
New Paris	Dr. G. L. Lyne
New Petersburg	
New Philadelphia	Dr. George H. Peck
New Richmond	Dr. J. A. Windsor
New Riegel	Anthony Imber
New Salem	
New Stark	
*New Straitsville	Robert Bell
*Newton Falls	Dr. H. M. Mealey
*Newtown	Dr. Thomas D. Mulloy
*New Vienna	Dr. W. T. Matthews
*New Washington	George Whitcum
New Waterford	A. J. Hayes
*New Weston	Dr. A. Pearson
Ney	Dr. P. M. Lehman
Niles	Dr. Henry V. Ormerod
North Amherst	Dr. Washington Foster
North Baltimore	Dr. J. W. Stoner
North Bend	Thomas Pierson
North Lewisburg	G. L. Freeman
North Lindale	Hugh Gearity
*North Robinson	Dr. James E. Morton
Norwalk	Dr. Edgar Martin
Norwich	L. B. Wilson
Norwood	Dr. J. C. Cadwallader
Nottingham	Dr. W. O. Jenks
Oak Harbor	Dr. S. D. Allen
Oak Hill	William Jenkins
Oakley	C. C. Nebel
*Oakwood	Allen Bidlack
Oberlin	E. L. Burge
Ohio City	S. R. Mapes
Olmsted Falls	H. D. Northrop
*Orangeville	Dr. R. R. Root
Orrville	Dr. A. A. Brooks
*Osborn	Ora Beakler
Osgood	William F. Davidson

* In lieu of a board of health.

Place.	Health Officer.
*Osnaburg	Dr. Wm. D. Davis
Ostrander	Dr. G. E. Cowles
Ottawa	Dr. Frank Light
*Ottoville	Dr. J. F. Ockuly
Otway	Simon Crow
Owensville P. O. (Boston)	Dr. G. G. Rutledge
*Oxford	W. E. Calohan
Painesville	S. A. Haskell
Palestine	
Pancoastburg P. O. (Waterloo) ..	
Pandora	Dr. E. A. Ballmer
Pataskala	Frank McConnaughey
Patterson	Peter C. Breidenbach
Paulding	Dr. Ira J. Dix
Payne	J. F. Bogart, Sanitary Policeman
*Peebles	Dr. George F. Thomas
Pemberville	Dr. R. J. Simon
Peninsula	Dr. W. N. Boerstler
Perrysburg	J. H. Hayes
Perrysville	D. W. Webster
Philo P. O. (Taylorsville)	Dr. C. L. Harmer
Pickerington	
Piketon	Andrew Martin
*Pioneer	A. F. Norris
Piqua	Dr. F. E. Kitzmiller
Pittsburg P. O. (Arnettsville)	Dr. J. O. Starr
*Plain City	J. W. Latham
*Plainfield	James Magness
*Pleasant City	J. M. Oldroyd
Pleasant Hill	Daniel Brown
*Pleasant Ridge	C. W. Acomb
*Pleasantville	M. B. McCleery
*Plymouth	Dr. George J. Searle
Poland	Dr. C. R. Justice
Polk	Dr. W. H. Rhinehart
*Pomeroy	Dr. James A. Miller
*Portage	B. O. Fausnaugh
Port Clinton	Dr. H. J. Pool
*Port Jefferson	Dr. D. J. Cargill
Portsmouth	Dr. W. W. Smith
Port Washington	Dr. E. S. Dunn
Port Williams	S. L. Thorpe
*Potsdam P. O. (New Lebanon)	Dr. D. W. Shellabarger
Powhatan Point	Franz Saner
Prairie Depot P. O. (Freeport, Wood Co.)	
Proctorville	Dr. R. E. Atkinson
Prospect	G. F. Gast
Put-in-Bay	Adam Heidle
Quaker City	W. W. Dowdell
Quincy	George B. Plummer

* In lieu of a board of health.

Place.	Health Officer.
*Racine	Elwood Davis
*Rarden	William Windle
Ravenna	F. A. Chamberlin
Rawson	Michael Smith
Reading	George Siebel
*Rendville	Dr. H. S. Cozard
Republic	C. E. Womer
*Reynoldsburg	B. F. Orem
Richmond (Grand River P. O.) ..	
Richmond (Jefferson Co.)	Dr. Samuel Rothacker
Richwood	C. W. Sloop
Ridgeway	Dr. E. B. Crow
Ringgold	
*Ripley	Dr. G. P. Tyler
Rising Sun	M. C. Mowen
*Rochester	Dr. John T. Henderson
Rock Creek	Dr. W. S. Weiss
Rockford	
Rockport (West Park P. O.)	
Rocky Ridge	John Krampke
*Rocky River	Dr. K. K. Hastings
*Rogers	William Ganible
Rome (Stouts P. O.)	
*Roscoe	J. S. Reed
*Roseville	T. C. Hilliard
Rossville (Hagermans P. O.)	
Rushsylvania	W. H. Drum
*Rushville	Dr. W. C. Lewis
Russellville	
*St. Bernard	Dr. A. C. Topic
*St. Clairsville	Dr. S. L. West
*St. John	Benjamin Price
St. Louisville	Dr. L. L. Marriott
St. Marvs	Dr. I. E. Williams
*St. Paris	Dr. C. A. Offenbacher
*Sabina	Dr. Samuel B. Leightner
Salem	Dr. E. J. Schwartz
*Salesville	Wm. T. Carpenter
*Salineville	Dr. H. M. Calvin
Sandusky	Dr. Wm. H. Busch
*Sarahsville	Eli H. Bates
*Savannah	Timothy Steinbring
Scio	Dr. G. D. Custer
Scott	S. S. Beach
Sebring	Frank Chisler
Sedalia P. O. (Midway)	Dr. E. B. Mead
*Sekitan P. O. (Addyston)	Dr. J. H. Haire
*Senecaville	Frank Morrison
*Seven Mile	C. B. Wilson
Seville	Dr. P. E. Beach
Sharon	J. A. Reid

* In lieu of a board of health.

Place	Health Officer.
*Shawnee	Emerson Peart
Shelby	Dr. A. C. Taylor
Sherodsville	Dr. J. D. Aldridge
Sherwood	Dr. H. C. Lindersmith
Shiloh	Dr. S. S. Holtz
Shreve	John R. Butler
Sidney	Wm. C. Wyman
*Silverton	Dr. A. A. Sprague
Sinking Spring	
Smithfield	Ross C. Moore
*Smithville	W. G. Zimmerman
Somerset	Dr. Michael Clouse
*Somerville	Frank Chapin
South Bloomfield	Dr. C. E. Blacker
South Brooklyn (Brooklyn P. O.)...	
*South Charleston	Washington Coss
South Lebanon P. O. (Deerfield)...	Dr. A. D. Spence
*South Point	Dr. C. Wayne McCoy
South Salem	Dr. E. C. Lumbeck
South Solon	Dr. W. H. Queen
South Webster	
*South Zanesville	B. F. Lane
Sparta	S. G. Fowls
Spencerville	G. A. Rusler
Springboro	John W. Bloss
Springfield	Dr. John M. Buckingham
*Spring Hills	Oliver H. Eby
*Spring Valley	Dr. S. E. Dyke
Steubenville	John Welch
Stewart	G. H. Hawk
*Stockport	Dr. T. J. Lyne
Stouts P. O. (Rome)	Dr. R. Y. Littleton
Strasburg	Dr. J. C. Schutzbach
*Struthers	John F. Shaffer
*Stryker	Dr. C. F. Mignin
Sugar Creek	J. E. Kauffman
*Sugar Grove	Dr. Samuel Renshaw
Summerfield	John Banghin
Sunbury	Dr. G. H. Gerhardt
Swanton	B. F. Mills
Sycamore	Dr. W. H. Wickham
*Sylvania	A. E. Stow
Syracuse	
*Tarlton	W. A. Leist
Taylorville (Philo P. O.)	
*Thornville	Dr. Frank R. Clemson
Thurman P. O. (Centerville)	Lewis W. Davis
Tiffin	Dr. A. C. Schwartz
Tiltonville P. O. (Grover)	
Tippecanoe City	F. N. Agenbroad
Tiro	Dr. W. H. Guiss

* In lieu of a board of health.

Place.	Health Officer.
Toledo	Dr. W. W. Brand
*Tontogany	Dr. Thomas A. Bickerstaph
*Toronto	John Wellington
Trenton	Wilson Thompson
*Trimble	Arthur W. Dean
Trinway	Le Roy Rose
*Trotwood	Dr. Rienzi R. Shank
Troy	Dr. G. E. McCullough
Tuscarawas	M. A. Romig, Mayor
Uhrichsville	Dr. Jas. A. McCollam
Union City	Dr. J. E. Detamore
Uniontown (Fultonham P. O.)	
*Unionville Center	Dr. C. O. McCune
†Uniopolis	Dr. J. W. Hurlburt
*Upper Sandusky	Dr. G. O. Maskey
Urbana	Dr. H. M. Pearce
Utica	Dr. G. T. Ely
Van Buren	James P. Grubb, Mayor
*Vandalia	Dr. W. H. Riley
Vanlue	Dr. Jas. L. Schrotz
Van Wert	Dr. C. G. Church
Venedocia	
Vermillion	J. M. Delker
Versailles	Dr. C. F. Ryan
Vienna (Vienna X Roads P. O.) ..	
Vienna X Roads P. O.	Dr. E. A. Dye
*Vinton	William McMillen
Wadsworth	Dr. C. N. Lyman
Waldo	Dr. B. D. Osborn
Wapakoneta	A. Kohler
Warren	Dr. George N. Simpson
Warsaw	S. W. Willis
Washington	S. B. Lawrence
Washington C. H.	F. M. Bateman
Washingtonville	William F. Culler
Waterloo (Pancoastburg P. O.) ..	
Waterville	H. T. Van Fleet
Wauseon	Frank Yarnell
Waverly	James J. Emmitt
Waynesburg	Dr. Gustave A. Shane
Waynesfield	J. P. Bennett
Waynesville	Dr. Thomas Sherwood
Webster	J. F. Byrd
Wellington	E. T. Robinson
Wellston	W. J. Brown
Wellsville	Dr. M. C. Tarr
*West Alexandria	Ora Bare
*West Carrollton	Frank E. Hinkson
West Cairo	Dr. Chas E. Stadler
West Elkton	Dr. Elwood Holaday
Western Star	Fred Becker

* In lieu of a board of health. † Appointed by the State Board of Health.

Place.	Health Officer.
Westerville	P. A. Conklin
West Farmington	
West Jefferson	Albert Clark
West Lafayette	Peter Johnson
West Leipsic	Eugene Lamphear
*West Liberty	Dr. R. M. Fulwider
*West Manchester	George W. Juday
*West Mansfield	Dr. H. A. Skidmore
West Middleburg	
West Mill Grove	
West Milton	Dr. Gainor Jennings
Weston	Dr. J. W. Williams
*West Park P. O. (Rockport)	Dr. Chas. L. Wood, Lakewood
West Rushville	
*West Salem	J. W. Ferguson
West Union	Dr. James W. Bunn
West Unity	D. C. Peppard
West Wheeling	
Wharton	J. J. Mayer
*Whitehouse	J. F. Lehman
Wilkesville	Dr. G. W. Martin
Williamsburg	Dr. J. P. Allen
Williamsport	Dr. D. H. Marcy
Willoughby	James Maloney
Willow P. O.	Dr. W. M. James
*Willshire	Dr. C. W. Bobo
Wilmington	Dr. A. T. Quinn
Wilnot	Dr. O. Curtis Ricksecker
*Winchester	Dr. C. S. Corboy
Windham	H. J. Higley
Woodsfield	John Beard
Woodstock	D. P. Smith
Woodville	Dr. R. M. Durbin
Wooster	Dr. J. W. Lehr
Worthington	Bert Berreil
Wren	P. G. Havice
Wyoming	George Stoddard
Xenia	Dr. L. H. Brundage
Yellow Springs	Isaac Loe
*Yorkshire	Alva Finkbone
Youngstown	Dr. H. E. Welch
Zaleski	Sylvester Shry
*Zanesfield	Dr. O. H. McDonald
Zanesville	Dr. W. C. Bateman
*Zoar	Frank Ackerman

* In lieu of a board of health.



ANNUAL REPORTS OF
LOCAL BOARDS OF HEALTH

OHIO STATE BOARD OF HEALTH.

OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, December 15, 1904.

To the Boards of Health and Health Officers:

DEAR SIR:—The law provides that on or before the 15th day of January of each year each local Board of Health and, where there is no Board of Health the Health Officer, shall make a report to the State Board of Health for the preceding calendar year. Such reports must necessarily largely deal with the work of the Board during the year, but may properly give information concerning the "sanitary condition and prospects" of their respective cities and villages.

A study of these reports as they have been made from year to year, bears witness to the progress in the work of boards of health.

The scope of this work necessarily differs, as the size and local conditions of various cities and villages differ greatly. Some questions asked may therefore not be pertinent to all places. They should be answered, when they are, as fully as possible.

We should receive your report not later than January 20th, in order that it may be included in the annual report of the State Board of Health to the Governor.

While the questions all refer to the "Board of Health," the Health Officer is meant where he serving in lieu of a Board of Health.

Very respectfully,

C. O. PROBST, M. D.

Secretary.

By order of the Board.

QUESTIONS.

1. Give the amount spent by the Board of Health during the year.
2. Give the number and character of prosecutions for violations of health laws or orders of the Board of Health, with results, (acquittal, conviction, and penalty, when imposed).
3. Are abandoned wells used to receive house drainage, or drainage from privies or water closets?

4. If so, state which, and if any action has been taken to stop the practice .
5. Does your Board require a license to sell milk?
6. Do you inspect the dairy before giving the license?
7. Do you inspect the sanitary conditions of your school houses as required by Section 2137 R. S.?
8. What system, if any, have you for the *collection* of garbage?
9. How do you *dispose* of the garbage?
10. Give your method for disinfecting houses after infectious diseases.
11. Is this done by you personally? If not by whom?
12. How often have you been called upon to disinfect houses or rooms on account of consumption?
13. If formaldehyde is employed for fumigation, give the name of the generator used, and amount of formaldehyde per 1,000 cubic feet of air space.

Please add any suggestions that may occur to you for increasing the efficiency of boards of health.

INFECTIOUS DISEASES.

NUMBER OF CASES REPORTED DURING THE YEAR.

(Give *cases* only.)

Smallpox	Typhoid Fever
Diphtheria	Whooping Cough
Membranous Croup	Measles
Scarlet Fever	Other Infectious diseases.....
Total number of infectious diseases.....	

ANNUAL REPORTS OF LOCAL BOARDS OF HEALTH.

ABERDEEN, BROWN COUNTY.

Population, 700.

Person making report, Dr. S. A. Laughlin, health officer.

Nothing was spent by the Board of Health during the year.

Prosecutions for violations of health laws or orders of the Board of Health; none made.

No abandoned wells known to be used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

At present I do not inspect the dairy before giving license.

No inspection was made of our schoolhouses, as the health officer was not called upon for such duty.

No system is used for the collection of garbage.

The same disposition is made of garbage as in all small towns.

Method for disinfecting houses after infectious diseases: Impregnating the air with formaldehyde gas, and the fumes of sulphur.

So far it has been done by me personally.

Have never been called upon by the Board of Health to disinfect houses or rooms on account of consumption.

In 1902, during our epidemic of variola, the only occasion we had for the use of a generator on a large scale, we borrowed one from the municipality of Maysville, Ky., (across the river). As it was charged with the solution, I do not know exactly the amount used.

Cases of infectious diseases reported: Typhoid fever, 4. Total number of infectious diseases, 4.

ADA, HARDIN COUNTY.

Population, 3,300.

Person making report, W. H. Morrow, health officer.

The amount spent by the Board of Health during the year was \$52.25.

Number and character of prosecutions for violations of health laws or orders of the Board of Health were: Two violations of health laws, one fined \$5.00 and costs, one \$1.00 and costs. No other trouble during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no regular dairies—one farmer furnishes a limited amount.

I make a monthly inspection of our schoolhouses. The sanitary conditions are good.

Garbage is collected in barrels.

Garbage collected and disposed of by parties having hogs in the suburbs.

My method for disinfecting houses after infectious diseases is: Seal all openings and fill with formaldehyde gas.

This is done by me personally.

Have had three calls during last year to disinfect houses or rooms on account of consumption.

Dr. Geo. Leininger's generator is used, the amount one-half to two ounces.

I have been much surprised by being called upon by undertakers to furnish transit for adjoining townships. I find that many of the villages and township boards of health do not issue burial permits at all. In fact, they pay no attention to the Board of Health.

ADDYSTON, HAMILTON COUNTY.

Population, 1,500.

Person making report, Dr. J. B. Hannah, health officer.

Amount spent by the Board of Health during the year: Salary health officer, \$240; for disinfectants, about \$6; burying dogs, \$6 or \$8.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Have inspected sanitary conditions of our school. They are of the best. A new closet was built of brick, cemented vault, cement floors with connection from roof which flushes to cells when it rains, rendering it perfectly clean.

Garbage, ashes, etc., are placed in barrels and put on sidewalk the first and fifteenth of each month and then removed at the expense of village. The new council upheld this arrangement at the organization January 2.

Garbage is hauled to the dump. Nothing goes into it that pigs or chickens will eat. It is kept separate and collected by private parties.

Method for disinfecting houses after infectious diseases: Rooms are closed tight, and I use a machine made by Max Woche & Son, similar to the West machine, and leave rooms closed for twenty-four hours.

Disinfecting is done personally by me.

Have never been called upon to disinfect houses or rooms on account of consumption.

I use a machine made by Max Woche & Son, same as the West. I use one pint, 50 per cent. solution, to 1,000 cubic feet of air space.

I think the Health Department should be conducted exclusively non-partisan and free from factions. Everything should be set aside in the interest of the good health of every

community. If the entire State was under one supervision or supervisor who would or could visit every section and appoint a deputy at a salary pro rata to the number of inhabitants in his district, it would be best.

Cases of infectious diseases reported: Scarlet fever, 3; measles (estimated), 25. Total number of infectious diseases, 28.

AKRON, SUMMIT COUNTY.

Population, 50,000.

Person making report, Dr. A. A. Kohler, health officer.

Amount spent by the Board of Health during the year, \$3,200.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk.

I do not inspect the dairy before giving the license.

I have inspected the sanitary conditions of our schoolhouses as required.

A private corporation collects the garbage from house to house, provided they are paid 15 cents a week. The garbage is collected three times a week in the summer and twice a week in the winter.

Garbage is taken outside the city limits; some of it is burned, the rest is dumped into a deep gulley.

Method for disinfecting houses after infectious diseases: We use sulphur disinfection. In a very few instances we use formaldehyde.

The disinfecting is done by the sanitary policeman.

Have had forty calls to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 20; diphtheria, 47; membranous croup, 2; scarlet fever, 32; typhoid fever, 52; whooping cough,

3; measles, 99; other infectious diseases, 7. Total number of infectious diseases, 292.

ALGER, HARDIN COUNTY.

Population, 750.

Person making report, Dr. U. P. L. Vermillion, health officer.

Board spent no money to my knowledge during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No report has been made to the board of abandoned wells. Drainage into sewers or tile ditches is used.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses are very good.

We have no system for the collection of garbage.

Each property holder, tenant or agent is duly notified, if necessary, to take his or her garbage to the garbage lot owned by the village for that purpose.

Method for disinfecting houses after infectious diseases: By burning sulphur in certain amounts, according to size of rooms, and washing walls with corrosive sublimate.

This is generally done by the owner, under the supervision of health officer.

I have never been called upon to disinfect houses or rooms on account of consumption.

We have no machine of that kind.

ALLIANCE, STARK COUNTY.

Population, 10,000, estimated.

Person making report, Dr. P. W. Welker, health officer.

Amount spent by the Board of Health during the year, \$1,465.92.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

I have not inspected the sanitary conditions of our schoolhouses. Did not know of passage of a law requiring the same.

We have no garbage system.

Garbage burned mostly by families in their stoves; others have it taken by private parties outside of city.

Method for disinfecting houses after infectious diseases: We use solid formaldehyde with generators.

The work is done by sanitary policeman, whom I have educated to perform the same.

Have never been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 17; diphtheria, 18; membranous croup, 2; scarlet fever. 9. Total number of infectious diseases, 46.

AMANDA, FAIRFIELD COUNTY.

Population, 500.

Person making report, W. A. Cromley, secretary Board of Health.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

I made no inspection of the dairy before giving the license.

I have inspected the sanitary conditions of our schoolhouses.

Garbage disposed of by burning.

Method for disinfecting houses after infectious diseases: We use formaldehyde.

The work is done by our health officer.

Have never been called upon to disinfect houses or rooms on account of consumption.

AMESVILLE, ATHENS COUNTY.

Population, 300.

Person making report, J. C. Snedeker, health officer.

Board does not require a license to sell milk.

I have inspected the sanitary conditions of our schools.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: For the disinfection of a medium size room, 20 feet long, 15 feet wide, 10 feet high, or say 3,000 cubic feet, a foot, 100 pastils. For the complete disinfection of larger rooms, two disinfectors should be used.

The work is done by me personally.

ANNA, SHELBY COUNTY.

Population, 600.

Person making report, Dr. D. R. Milliette, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage or drainage from privies or water closets.

Board does not require a license to sell milk.

I have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Closing house as near air tight as possible and loosening all bed clothes, etc., in room, then burning about three pounds of sul-

phur to the 1,000 cubic feet and leave six to ten hours.

The work is done by myself.

I have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Scarlet fever, 3. Total number of infectious diseases, 3.

ANSONIA, DARKE COUNTY.

Person making report, Dr. C. I. Stephen, health officer.

The Board of Health spent about \$25 for fumigator and formaldehyde during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk by the board.

Our school building is a new modern building, completed in December, 1903. The sanitary condition is all right.

We have no system for the collection of garbage.

Garbage is taken to the dump with other refuse matter.

My method for disinfecting houses after infectious diseases is: Rooms are tightly closed after bedding and other things are hung on lines, and fumigated. It is then recommended that all washable material be boiled and washed before using.

The fumigating is done by me.

Have had no calls to disinfect house or rooms on account of consumption.

I use a fumigator purchased from Max Woche, Cincinnati, a modification of the Lentz fumigator, I think. I use ten ounces to 1,000 cubic feet air space. We have not had any cases coming from infected places after fumigation.

Infectious cases reported during the year: Scarlet fever, 4; measles, 71. Total number of infectious diseases, 75.

ANTWERP, PAULDING COUNTY.

Population, 1,250.

Person making report, E. K. Terwilliger, health officer.

The Board of Health expended \$75 during the year.

Prosecutions for violations of health laws or orders of the Board of Health, there were none.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We do not issue licenses.

No inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Garbage is disposed of by private parties.

My method for disinfecting houses after infectious disease is to use formaldehyde.

The work of disinfecting houses is done by me.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 2; measles, 8. Total number of infectious diseases, 12.

APPLE CREEK, WAYNE COUNTY.

Population, 400.

Person making report, Dr. W. H. Winkler, health officer.

Amount expended by the Board of Health during the year, \$10.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

I do not inspect the dairy before giving the license.

I have not fully inspected the sanitary conditions of our schoolhouses.

Collection of garbage is made by notification from the health officer.

The garbage is hauled out and thrown in some low place outside of corporation.

For disinfecting houses after infectious diseases my method is burning sulphur and spraying formaldehyde.

The spraying of formaldehyde is done by Dr. J. R. Jameson. The burning of sulphur is done by some competent person.

I have had one call to disinfect houses or rooms on account of consumption.

The generator used is of the Max Wocher make, Cincinnati. Amount of formaldehyde used per 1,000 cubic feet of air space is one pint.

I suggest the board should be reorganized, and it must be done. We had some trouble last spring. Old officers holding over too long is not best.

Number of cases of infectious diseases reported during the year: Smallpox, 8; typhoid fever, 1; other infectious diseases, 1. Total number of infectious diseases, 10.

ARCADIA, HANCOCK COUNTY.

Population, 500.

Person making report, W. W. Moore, health officer.

The Board of Health spent thirty hours' labor during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk when sold from wagon.

We have no dairies to inspect.

I have inspected the sanitary conditions of our schoolhouse as required by law.

We use a solution of sulphur for dis-

infecting houses after infectious diseases.

When disinfecting is not done by myself, the attending physician does it.

Have no cases of infectious diseases to report.

ARCANUM, DARKE COUNTY.

Population, 1,350.

Person making report, P. W. Byers, secretary Board of Health.

The amount expended by the Board during the year was \$65.

There were no prosecutions for violations of health laws or orders of the Board of Health.

We do not use abandoned wells to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our school houses were inspected as required.

We have a general collecting of garbage twice a year.

- Garbage is disposed of in a dump in a secluded territory.

Fumigating by formaldehyde gas is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by the health officer.

To disinfect houses or rooms on account of consumption I have had no calls.

I use the West regenerator No. 2, and from 6 to 10 ounces fluid, 40 per cent. per 1,000 cubic feet of air space.

During the year the number of cases of infectious diseases were: Diphtheria, 4. Total number of infectious diseases, 4.

ARCHBOLD, FULTON COUNTY.

Population, 958.

Person making report, August Ruihley, health officer.

For violations of health laws or or-

ders of the Board of Health, there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

As yet the board does not require a license to sell milk.

I have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

Every citizen or family must dispose of his own garbage.

My method for disinfecting houses after infectious diseases is using either sulphur or formaldehyde.

Work is done either personally or under my direction by the doctor who treated the case.

Have been called upon once to disinfect houses or rooms on account of consumption.

We have no regular generator. I obtain same from our drug stores either in liquid or solidified form and evaporate same in a heated pan of water.

ARLINGTON, HANCOCK COUNTY.

Population, 900.

Person making report, Solomon Bates, health officer.

Amount spent by the Board of Health during the year, \$33.

Prosecutions for violations of health laws or orders of the Board of Health, none.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Collection of garbage is made twice each summer and buried in dump ground provided for that purpose, and as much oftener as necessary.

We use formaldehyde with alcohol lamp for disinfecting houses after infectious diseases.

I do the work of disinfecting personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

I use the George Leninger generator; amount of formaldehyde used one-half to three-fourths per 1,000 cubic feet of air space.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 13. Total number of infectious diseases, 15.

ARNOTTSTVILLE, DARKE COUNTY.

Population, 200.

Person making report, Dr. J. O. Starr, health officer.

The Board of Health spent \$5.00 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no dairies to inspect.

I have inspected the sanitary conditions of our schoolhouses as required by law.

We have no garbage system.

Garbage disposed of by burning outside of corporation.

Method for disinfecting houses after infectious diseases: I disinfected one house with sulphur.

The work is done by myself.

Have never been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Typhoid fever, 1. Total number of infectious diseases 1.

ASHLAND, ASHLAND COUNTY.

Population, 5,000.

Person making report, A. B. Newcomer, clerk of Board.

Excepting salaries, the amount spent by the Board of Health was \$12.45. For salaries \$245. Total amount expended, \$257.45.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

I do not inspect the dairy before giving the license.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

For disposition of garbage we have just completed a sewage disposal plant.

My method for disinfecting houses after infectious diseases is: First, we begin during any infectious disease by the necessary and most stringent rules for cleanliness during and after usual quarantine; we fumigate with formaldehyde generator and sulphur and formalin torches. Where convenient, we require Platt's chloride solution to be used during period of sickness.

Work of disinfecting is done by the sanitary officer.

To disinfect houses or rooms on account of consumption, I have been called eight times.

One case of scarlet fever was the only case of infectious diseases reported during the year.

ASHLEY, DELAWARE COUNTY.

Population, 800.

Person making report, Dr. M. B. McGonigle, health officer.

The amount expended by the Board of Health during the year was \$1.50.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

I have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Individuals care for the disposal of garbage.

Fumigate with sulphur, wash walls and woodwork with bichloride or carbolic acid solution, boil or burn bedding, etc., is my method for disinfecting houses after infectious diseases.

Work is done by owner of house under my instruction.

Have not been called upon to disinfect houses or rooms on account of consumption.

I do not use formaldehyde.

Cases of infectious diseases reported: Typhoid fever, 9; whooping cough, 5; measles, 15. Total number of infectious diseases, 29.

ASHTABULA, ASHTABULA COUNTY.

Population, 15,000.

Person making report, A. J. Richardson, clerk of Board.

There were \$1,908.35 spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses. We also disinfect all school buildings in city limits once a year with formaldehyde.

Garbage is collected under contract with or in iron tank.

The garbage is disposed of by contractor to farmers outside city limits.

Method for disinfecting houses after infectious diseases: By boiling formaldehyde on stoves operated through window.

The work is done by Inspector J. J. Farrell.

Have never been called upon to disinfect houses or rooms on account of consumption.

We use gas and gasoline stoves. Amount of formaldehyde used, 6 to 10 ounces per 1,000 cubic feet, as case may require.

I suggest that a house having tuberculosis and typhoid fever be quarantined and disinfected.

Cases of infectious diseases reported during the year: Smallpox, 1; diphtheria, 16; scarlet fever, 2; typhoid fever, 184; whooping cough, 1; measles, 71; other infectious diseases, 22. Total number of infectious diseases, 297.

ASHVILLE, PICKAWAY COUNTY.

Population, 1,000.

Person making report, Mr. John Johnson, health officer.

Amount expended by the Board of Health during the year, \$20.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

No inspection was made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Everybody attends to their own disposal of garbage. Anything of an offensive character is taken to the creek near town.

Burning sulphur for three hours with the house tightly closed and having all articles hung up so as to prop-

erly disinfect them is my method for disinfecting houses after infectious diseases.

The disinfecting is done personally by me.

Have had no calls to disinfect houses or rooms on account of consumption.

We have a formaldehyde lamp, but have only used it once, and then in a case of smallpox.

ATHENS, ATHENS COUNTY.

Population, 5,000.

Person making report, W. A. Hibbard, secretary Board of Health.

Amount spent by the Board of Health during the year was \$265.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

To receive house drainage, or drainage from privies or water closets abandoned wells are not used.

Board requires a license to sell milk.

Before giving the license the dairy is inspected.

Have inspected sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Garbage is disposed of on dumping ground outside of corporation.

Method for disinfecting houses after infectious diseases: Spray with bichloride of mercury 1 to 1,000 and fumigating with formaldehyde.

Work is done by me or the health officer.

On one occasion only have I been called upon to disinfect houses or rooms on account of consumption.

I use Geo. H. Leininger's generator, and one ounce, 40 per cent. solution to each 1,000 cubic feet.

Co-operation of village council and citizens and some recognition of the power and authority would help a board out very much.

Cases of infectious diseases reported: Scarlet fever, 10; typhoid fever, 12; measles, 30. Total number of infectious diseases, 52.

ATTICA, SENECA COUNTY.

Population, 700.

Person making report, Dr. C. A. Force, health officer.

Forty dollars were expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

Have made inspection of the sanitary conditions of our schoolhouses.

We have no regular system, but require people to take care of all garbage and remove from corporation before it decomposes.

Garbage is drawn off or burned.

Formaldehyde lamp is my method for disinfecting houses after infectious diseases.

In severe cases I do the work myself. In less severe cases I give them the lamp and instruct them how to use it.

Have not been called upon to disinfect houses or rooms on account of consumption.

The generator used is one furnished by the former board. I cannot tell the name.

During the year the following cases of infectious diseases were reported: Typhoid fever, 3. Total number of infectious diseases 3.

AVON, LORAIN COUNTY.

Population, 2,500.

Person making report, Dr. John R. Pipes, health officer.

About \$15 were expended by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The dairy is not inspected before giving a license.

Have inspected the sanitary conditions of our schoolhouses during the last few months. All buildings and outhouses are in good repair, excepting two or three privies, which are now being repaired.

We have no system for the collection of garbage.

Disposition of the garbage is made by either throwing on ground as fertilizer or fed to hogs and cattle.

My method for disinfecting houses after infectious diseases is sulphur fumes and formaldehyde gas.

The work is done by me.

Have been called upon twice to disinfect houses or rooms on account of consumption.

The generator used is of the Parke, Davis & Co. make. Amount used, 8 to 10 ounces ordinarily, frequently I will use more, especially in houses with many doors, windows, closets and halls.

Cases of infectious diseases reported: Measles, 2. Total number of infectious diseases, 2.

BAINBRIDGE, ROSS COUNTY.

Population, 1,000.

Person making report, Dr. R. H. McKee, health officer.

Amount spent by the Board of Health during the year was \$25.

There were no prosecutions for violations of health law or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses. I found them all in good sanitary condition.

Have no system for the collection of garbage.

Schering's formalin lamp and Leininger's solidified formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me.

Have had no calls to disinfect houses or rooms on account of consumption.

I use Schering's generator and one ounce of solidified formaldehyde.

Cases of infectious diseases reported: Typhoid fever, 3. Total number of infectious diseases 3.

BAKERSVILLE, COSHOCTON COUNTY.

Population, 200.

Person making report, Dr. J. D. Lower, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

No inspection is made of the dairy before giving the license.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

No disposition made of the garbage.

My method for disinfecting houses after infectious diseases is formaldehyde.

Have never been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Scarlet fever, 3; typhoid fever, 1.

Total number of infectious diseases, 4.

**BALTIMORE, FAIRFIELD
COUNTY.**

Population, 525.

Person making report, L. K. Davis, health officer.

The Board of Health expended \$11 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Have not up to this time inspected the sanitary conditions of our school-houses.

We have no system for the collection of garbage.

Parties make their own disposition of garbage.

Have no method as yet for disinfecting houses after infectious diseases.

The work is done by the parties themselves.

Have never been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 1; scarlet fever, 2. Total number of infectious diseases, 3.

BARBERTON, SUMMIT COUNTY.

Population, 8,000.

Person making report, Dr. W. A. Mansfield, health officer.

During the year the Board of Health spent \$1,369.

For violations of health laws or orders of the Board of Health, there were eleven arrested during the year, ten were reprimanded and one fined \$5 and costs.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our school-

houses were inspected as required by law.

Have no system for the collection of garbage.

Citizens hire teamsters to haul their garbage outside the city limits to a dumping ground.

Method for disinfecting houses after infectious diseases: Formaldehyde gas generated from the liquid formaldehyde.

Work of disinfecting is done by the sanitary officer.

To disinfect houses or rooms on account of consumption I have had two calls.

Mulford generator, and from 8 to 10 ounces of the liquid formaldehyde is used for each 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 12; membranous croup, 1; scarlet fever, 35; typhoid fever, 5; measles, 115. Total number of infectious diseases, 176.

**BARNESVILLE, BELMONT
COUNTY.**

Population, 4,500 (approximated).

Person making report, Dr. D. O. Sheppard, health officer.

Amount spent by the Board of Health during the year, \$125.

Prosecutions for violations of health laws or orders of the Board of Health were: Four for removal of night soil without a permit. All were convicted but one, which case is pending.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

I have inspected the sanitary conditions of our schoolhouses as required.

Have no system for the collection of garbage.

Each family disposes of their own garbage.

The use of suspended sheets

sprayed with formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me.

Have not been called upon to disinfect houses or rooms on account of consumption.

I use one quart of the standard solution of formaldehyde.

I suggest that something be done to induce the board to have regular meetings.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 12; whooping cough, many; measles, epidemic.

BATAVIA, CLERMONT COUNTY.

Population, 1,029.

Person making report, C. H. Crane, health officer.

Board of Health during the year expended \$25.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have no regular dairies.

Have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Each residence keeps premises clean. No collection allowed of garbage. It is mostly dumped outside the village.

Method for disinfecting houses after infectious diseases: Disinfect with formaldehyde generator.

The work of disinfecting is done by H. U. Moore undertaker, under my supervision.

Have not been called upon to disinfect houses or rooms on account of consumption this year.

Cases of infectious diseases reported: Typhoid fever, 4. Total number of infectious diseases, 4.

BEALLSVILLE, MONROE COUNTY.

Population, 600.

Person making report, A. C. Harper, health officer.

Amount spent by the Board of Health during the year, \$15.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

School building is new and is in good sanitary condition.

Have no system for the collection of garbage.

Disposition of garbage is made by each family.

Have no method for disinfecting houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

BEAVER, PIKE COUNTY.

Population, 340.

Person making report J. M. Swan, health officer.

During the year the Board of Health spent \$8.00.

For violations of health laws or orders of the Board of Health a third complaint was filed January 7, 1904, by J. M. Swan, health officer, against a liveryman who deprived his horses of the necessary sustenance and repeatedly violated Section 6951 of the Revised Statutes of Ohio. He was prosecuted and convicted. He paid his fine of \$5 and costs and was then released on promise of good behavior.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

No inspection is made, having no dairies.

Inspection of the sanitary conditions of our schoolhouse are made as required. I notify the school board every fall and spring to scrub and clean the school buildings, and I see that it is done.

We have no system for the collection of garbage.

When I find a wagon load or two, if parties do not dispose of it, I have some farmer to haul it away.

Method for disinfecting houses after infectious diseases: An old pot and some chemicals obtained from the drug store, after the rooms are scrubbed and thoroughly cleaned are used. The pot is set in the center of room and set afire. This is continued for four to six hours.

Only in part do I do the work of disinfecting. Some families prefer doing the work themselves.

I have been called upon once to disinfect houses or rooms on account of consumption.

For increasing the efficiency of Boards of Health, I think every Council ought to be compelled to furnish their health boards and health officer with a good generator. This, I think, is necessary.

Number of cases of infectious diseases reported: Typhoid fever, 1. Total number of infectious diseases, 1.

BEAVER DAM, ALLEN COUNTY.

Population, 600.

Person making report, Frank Huttlinger, Secretary of Board of Health.

About \$6 were expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Do not inspect the dairy before giving the license.

Sanitary conditions of our schoolhouses were inspected.

Garbage is disposed of by burying it

Brimstone and formaldehyde is my method for disinfecting houses after infectious disease.

The sanitary officer does the work of disinfecting.

To disinfect houses or room on account of consumption, I have had one call.

Mulford's generator is used, and 12 to 14 ounces of 40 per cent. solution to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Scarlet fever, 1. Total number of infectious diseases, 1.

BEDFORD, CUYAHOGA COUNTY.

Population, 1,904.

Person making report, Thomas E. Mathews, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

We dispose of the garbage by burning and then burying it.

Method for disinfecting houses after infectious diseases: I give one hour to each room with formaldehyde; hang on line all bedding and wearing apparel in each room before I put the machine to work.

The work is done by me personally.

I have not been called upon to disinfect houses or rooms on account of consumption.

I use a Firmus generator and about one pint of formaldehyde.

Cases of infectious diseases reported: Diphtheria, 4; typhoid fever, 12; measles, 26; other infectious diseases, 3. Total number of infectious diseases, 45.

BELLAIRE, BELMONT COUNTY.

Population 10,000.

Person making report, Dr. D. W. Boone, health officer.

During the year the Board spent \$800.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Have not inspected the sanitary conditions of our schoolhouses.

Sanitary wagon collects from garbage cans once or twice a week, or as often as the sanitary officer orders the work done. The city owns the sanitary wagon and loans it to the party who furnishes the team, who does the work on his own responsibility subject to the orders of the sanitary officer.

Garbage is disposed of by hauling it a half mile up McMahon Creek Bottoms, which is overflowed once or twice a year by the back water from the Ohio River.

Formaldehyde and sulphur fumigation is my method for disinfecting houses after infectious diseases.

Samuel Simmons, sanitary officer, does the work of disinfecting.

Had no calls to disinfect houses or rooms on account of consumption.

Leutz's generator is used, and from 8 to 12 ounces of formaldehyde.

Cases of infectious diseases reported: Diphtheria, 44; membranous croup, 5; scarlet fever, 9; typhoid fever, 108; whooping cough, 66; measles, 111. Total number of infectious diseases, 343.

BELLBROOK, GREENE COUNTY.

Population, 450.

R. M. Martz, health officer.

Amount expended by the Board of Health during the year was \$25.

License to sell milk is not required by the board.

Up to this time we have not inspected the sanitary conditions of our schoolhouses. We felt there was no need of inspection, as our schoolhouse is comparatively new and in good shape.

BELLE CENTER, LOGAN COUNTY.

Population, 1,000.

Person making report, J. T. Ewing, health officer.

About \$5 were expended by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

Not to my knowledge have abandoned wells been used to receive drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Inspection of the dairy is not made before giving the license.

I have inspected the sanitary conditions of our schoolhouse and find that the school building is an exceptionally well ventilated building.

Board requires all ashes and slops to be put in a receptacle and hauled away, but it is not strictly enforced, depending on conditions. In spring we issue an order for a general cleaning up, when all accumulation of winter must be cleaned up and hauled away.

Garbage is disposed of by hauling to a dump outside of corporation.

Formalin in a generator is my method for disinfecting houses after infectious diseases.

The work is done by myself.

Have not been called upon to disinfect houses or rooms on account of consumption.

I cannot recall the name of the generator at present, but it is a very good one, costing \$23. The amount used depends on the size of the house

or building—use about 6 or 10 ounces to 1,000 cubic feet, but often much more, depending on conditions.

Cases of infectious diseases reported. Smallpox, 1; scarlet fever, 1. Total number of infectious diseases, 2.

BELLEVUE, HURON COUNTY.

Population, 4,500.

Person making report, Dr. I. I. Good, secretary of Board of Health.

The amount expended by the Board of Health during the year was \$200.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

Inspection of the dairy is made before giving the license.

Sanitary conditions of our schoolhouses were not thoroughly inspected.

We have no system for the collection of garbage at the expense of the village.

Garbage is disposed of by burying it one and one-half miles out from the village on leased property.

For disinfecting houses after infectious diseases my method is formaldehyde gas.

Work of disinfecting is done by the sanitary officer.

Have kept no record of calls to disinfect houses or rooms on account of consumption.

Have two generators one a George Leininger make, the other is rather large but I do not know the name of it.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 5. Total number of infectious diseases, 7.

BELLVILLE, RICHLAND COUNTY.

Population, 1,100.

Person making report, Dr. C. E. Hunter, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

This is a country village, and each person or family cares for their garbage.

There is no particular way for disposing of the garbage.

Fill the rooms with formaldehyde gas and keep closed for twenty-four hours is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the health officer.

Never have been called upon to disinfect houses or rooms on account of consumption.

I use Dr. Novy's generator, and about 8 to 10 ounces of formaldehyde.

BELMONT, BELMONT COUNTY.

Population, 500.

Person making report, David S. Pierce, health officer.

The amount spent by the Board of Health during the year was \$10 or \$12.

There were plenty of violations of health laws or orders of the Board of Health, but no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk.

We have no dairies.

We have no system for the collection of garbage. When ordered everyone is expected to clean up.

Method for disinfecting houses after infectious diseases: I use sulphur and formaldehyde. We had no generator until recently.

BELOIT, MAHONING COUNTY.

Population, 400.

Person making report, R. R. Boyle, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk.

Sanitary conditions of our school-houses were inspected.

Have no system for the collection of garbage.

Burning sulphur is my method for disinfecting houses after infectious diseases.

There have been no houses to disinfect the past year.

Have not been called upon to disinfect houses or rooms on account of consumption, there being no cases.

BELPRE, WASHINGTON COUNTY.

Population, 1,200.

Person making report, Dr. J. V. Athey, clerk.

Board of Health spent \$14.50 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

No inspection is made of the dairy before giving the license.

Sanitary conditions of our school-houses were made as required.

We have no system for the collection of garbage.

Disposition of the garbage is usually made by giving it to hog raisers for the hauling.

My method for disinfecting houses

after infectious diseases is sulphur fumigation, four pounds to 1,000 cubic feet.

Work of disinfecting is done by Health Officer Jos. Sharp.

Have not been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Smallpox, 1; diphtheria, 6; scarlet fever, 1; typhoid fever, 7; whooping cough, 8; measles, 7. Total number of infectious diseases, 30.

BEREA, CUYAHOGA COUNTY.

Population, 3,000.

Person making report, T. L. McKean, secretary of Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Garbage is disposed of by burning or dumping into old quarries.

For disinfecting houses after infectious diseases we use a formaldehyde generator, as is done in Cleveland.

Dr. A. A. Smith does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

The Novy generator is used, and 240-300 cc. per 1,000 cubic feet. This is the same instrument as is used by the city Board of Health in Cleveland.

BETHEL, CLERMONT COUNTY.

Population, 1,000.

Person making report, Dr. W. E. Thompson, health officer.

Board requires no license to sell milk.

Sanitary conditions of our school-house were inspected. The well and water closets are in as good sanitary condition as could be expected.

Have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Disinfect with sulphur in the usual way, as prescribed by the State Board.

Dr. J. D. Abbott does the work under my direction.

Cases of infectious diseases reported: Diphtheria, 1; typhoid fever, 3.

BETTSVILLE, SENECA COUNTY.

Population, 492 (census, 1900).

Person making report, J. C. Brockman, health officer.

Board of Health spent \$25 for salary during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Do not inspect the dairy before giving the license.

I have inspected the sanitary conditions of our schoolhouses as required.

Have no system for the collection of garbage.

Garbage is carted on lands.

Formaldehyde is used for disinfecting houses after infectious diseases.

Tenants do the work of disinfecting.

I have not been called upon to disinfect houses or rooms on account of consumption.

Novy generator is used. Amount of formaldehyde used, 8 to 10 ounces.

I have no suggestions to offer.

No cases of infectious diseases reported.

BLAKESLEE, WILLIAMS COUNTY.

Person making report, J. R. Whaley, health officer.

Nothing was expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

We have no dairy.

Have inspected the conditions of our schoolhouses.

What garbage we have is used as fertilizer and plowed under.

We have had no occasion for disinfecting houses after infectious diseases.

Have had no calls to disinfect houses or rooms on account of consumption.

No cases of infectious diseases reported.

BLANCHESTER, CLINTON COUNTY.

Population, 2,500.

Person making report, U. B. Chambers, health officer.

Amount spent by the Board of Health during the year, \$100.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouse and found water supply for school both bad and deficient in quantity.

The collection of garbage is done by street commissioner.

Garbage is disposed of in a dump located outside of corporation.

Method for disinfecting houses after infectious diseases: Dr. George Lein-

inger Chemical Co. generator with dry formaldehyde.

Work is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

One generator is used; amount, one and one-half ounces.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 10; typhoid fever, 2. Total number of infectious diseases, 13.

BLOOMDALE, WOOD COUNTY.

Population, about 700.

Person making report, G. W. Urie, health officer.

Nothing was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk.

Milk is gathered from farmers and sold direct from them to a deliveryman.

No cases of infectious diseases reported.

BLOOMINGBURG, FAYETTE COUNTY.

Population, 650.

Person making report, Dr. L. Loring Brock.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

We have no dairies.

I have inspected the sanitary conditions of our schoolhouses.

Garbage is disposed of one mile from the village.

Have never had occasion in this town to disinfect for infectious dis-

eases, but would use formaldehyde fumigators.

To disinfect houses or rooms for consumption, I have never been called upon.

There were no cases of infectious diseases reported.

BLUFFTON, ALLEN COUNTY.

Population, 2,000.

Person making report, Dr. John J. Sutter, health officer.

During the year the Board of Health spent \$112.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

For the collection of garbage we have no system.

Each family disposes of their own garbage; used as slop for hogs mostly.

Method for disinfecting houses after infectious diseases: Formaldehyde generator.

The disinfecting is done by me.

Never have been called upon to disinfect houses or rooms on account of consumption.

Generator used, Park, Davis & Co. (large). The amount used depends on the nature of the disease.

Cases of infectious diseases reported: Typhoid fever, 3; whooping cough, 4. Total number of infectious diseases, 7.

BOTKINS, SHELBY COUNTY.

Population, 800.

Person making report, P. C. Lawhead, health officer.

Board of Health spent nothing during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses is made once a month.

Have no system for the collection of garbage.

The work of disinfecting houses after infectious diseases is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Smallpox, 7; diphtheria, 6; membranous croup, 3. Total number of infectious diseases, 16.

BOWERSTOWN, HARRISON COUNTY.

Population, 625.

Person making report, J. R. Penn, health officer.

Amount spent by the Board of Health during the year, \$12.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made, and the conditions are good.

For the collection of garbage we have no system. Farmers collect and haul it into the country. All dead animals are buried by the marshal.

Have no method for disinfecting houses after infectious diseases. Have had no infectious diseases.

Have had no calls to disinfect houses or rooms on account of consumption.

Cases of infectious diseases during the year: None reported.

BOWERSVILLE, GREENE COUNTY.

Population, 400.

Person making report, J. E. Steward, health officer.

Fifty dollars were expended during the year by the Board of Health.

There were two prosecutions for violations of health laws or orders of the Board of Health. Both cases were for running and maintaining a slaughter house within the said village. The Mayor fined defendants \$40 and cost of prosecution. Court of Common Pleas reversed his findings in one case and the other has not been decided.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

I have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

We have no particular method for disinfecting houses after infectious diseases. Dr. C. E. Ream does the work of disinfecting.

To disinfect houses or rooms on account of consumption, I have had one call.

The name of the generator used is not known.

One case of smallpox is only case of infectious disease reported.

BOWLING GREEN, WOOD COUNTY.

Population, 5,067.

Person making report, J. B. Miller, health officer.

The amount spent by the Board of Health during the year was \$564.18.

Board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

Garbage is collected by scavengers.

Garbage is disposed by burying on dump ground.

Formaldehyde generator is my meth-

od for disinfecting houses after infectious diseases.

Work is done by me personally.

Use Leininger's generator, and use from one to two ounces of solidified formaldehyde.

Number of cases of infectious diseases reported during the year: Small-pox 5; diphtheria, 2; scarlet fever, 10; typhoid fever, 25; measles, 50. Total number of infectious diseases, 92.

BRADFORD, DARKE AND MIAMI COUNTIES.

Population, 1,600.

Person making report, A. F. Little, secretary of Board of Health.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Have had a few cases of abandoned wells being used for drainage, but all have been abated so far as we know. Had no trouble with parties.

A license to sell milk is required by the board.

An inspection of the dairy is made before giving the license.

The sanitary conditions of our schoolhouses were inspected. Recommended a few minor sanitary improvements. Board has agreed to same.

For the collection of garbage we have a man employed, using wagon.

Garbage is disposed of in a large vault or dump outside the corporation lines.

I have no method for disinfecting houses after infectious diseases.

No cases of infectious diseases reported during the year.

BRADNER, WOOD COUNTY.

Population, 1,200.

Person making report, O. J. Mitchell, health officer.

Board of Health spent nothing during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The dairy is not inspected before giving the license.

Have inspected the sanitary conditions of our schoolhouses and found everything in good condition so far.

I have a contract with a garbage gatherer, and it is taken to the dump ground.

Garbage is taken to the dumping ground and is disposed of by burying or burning.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by the undertaker of the village.

At no time have I been called upon to disinfect houses or rooms on account of consumption.

The George Leininger generator is used, and the amount one ounce.

Cases of infectious diseases reported: Typhoid fever 2. Total number of infectious diseases, 2.

BRIDGEPORT, BELMONT COUNTY.

Population, 4,000.

Person making report, Dr. W. M. Oates, health officer.

The amount spent by the Board of Health during the year was \$100 for health officer and \$50 for sanitary policeman.

For violations of health laws or orders of the Board of Health there was one prosecution for refusal to abate a nuisance when ordered to do so; convicted and fined \$1.00 and costs, amounting to \$5.15.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

No inspection is made of the dairy before giving the license.

The sanitary conditions of our schoolhouses were not inspected.

We have no system for the collection of garbage.

Garbage is disposed of by hauling outside the corporation by private individuals once a week, the people paying a certain sum each week to the parties doing this.

My method for disinfecting houses after infectious diseases is: Use four pounds of roll sulphur for a room ten feet square. Put the sulphur in an iron pan on bricks placed in a tub containing a few inches of water; pour alcohol on sulphur and set it on fire; keep the rooms closed for 12 hours.

The sanitary policeman does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Formaldehyde is not employed.

Cases of infectious diseases reported: Diphtheria 7; membranous croup, 1; scarlet fever, 1. Total number of infectious diseases, 9.

BROOKLYN HEIGHTS, CUYAHOGA COUNTY.

Population, 200.

Person making report, J. E. Richardson, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Have not been called upon to disinfect houses or rooms on account of consumption.

BROOKVILLE, MONTGOMERY COUNTY.

Population, 1,000.

Person making report, Dr. H. W. McMillen, health officer.

Board of Health spent \$46.20 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have not inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Formaldehyde gas generated through keyhole of door.

Work of disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have had one call.

Primus is generator used, amount about one-half pound.

Cases of infectious diseases reported: Typhoid fever, 10. Total number of infectious diseases, 10.

BRYAN, WILLIAMS COUNTY.

Population, 3,500, estimated.

Person making report, N. Vineyard, secretary and health officer.

About \$800 were expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No open abandoned wells in town.

Board requires no license to sell milk. Our milk is not clean nor pure and needs inspection.

We have thoroughly inspected the sanitary conditions of our school-houses.

Garbage is collected and hauled to their stock and farms.

What is not used by farmers and hog raisers is hauled to dump grounds.

Boiling liquid and solidified formaldehyde is my method for disinfecting houses after infectious diseases.

The work is done by me personally.

We do not take much stock in generators. Keep on boiling formaldehyde until every germ and microbe is destroyed.

Cases of infectious diseases reported: Smallpox, 65; diphtheria, 2; scarlet fever, 1. Total number of infectious diseases, 68.

BUCHTEL, ATHENS COUNTY.

Population, about 1,000.

Person making report, Dr. A. P. Lee, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Do not inspect dairy before giving the license.

The sanitary conditions of our schoolhouses have not been inspected.

We have no system for the collection of garbage.

Fumigation with formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Number of cases of infectious diseases reported: Smallpox, 12; scarlet fever, 4; typhoid fever, 3; measles, 8. Total number of infectious diseases, 27.

BUCYRUS, CRAWFORD COUNTY.

Population, 8,000, estimated.

Person making report, Dr. A. H. McCrory, health officer.

During the year the Board of Health spent \$1,129.67.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We inspect the dairies but do not require a license.

Have inspected the sanitary conditions of our schoolhouses as required.

Garbage is collected twice a week by the garbage wagon.

Garbage is taken to the dumping grounds outside of the city limits and buried.

We disinfect houses after infectious diseases by generating formaldehyde gas. The bed covers, clothing, etc., are hung on lines stretched across the rooms, and the rooms are made as air-tight as possible by stopping all cracks about doors, windows and fireplaces. The contents of the rooms are kept exposed to the gas from eight to twelve hours.

Work of disinfecting is done by myself or sanitary officer.

Have no record of houses or rooms disinfected on account of consumption. During the past year I have fumigated all houses where deaths occurred.

West and Novy generators are used. We use 10 to 15 ounces of formaldehyde per 1,000 cubic feet of air space.

Number of cases of infectious diseases reported during the year: Smallpox, 91; diphtheria, 5; scarlet fever, 5; typhoid fever, 9; measles, 8; other infectious diseases, 11. Total number of infectious diseases, 129.

BURBANK, WAYNE COUNTY.

Population, 400.

Person making report, A. W. Hoffman, health officer.

One dollar was expended by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected and found to be in good shape.

No system employed for the collection of garbage.

Each family disposes of their own garbage.

For disinfecting houses after infectious diseases, we would use formaldehyde.

Disinfecting is done by myself.

Have had no calls to disinfect houses or rooms on account of consumption.

J. Elwood Co. formaldehyde and sulphur torch is used.

One case of scarlet fever was the only case of infectious disease reported.

BURKETTSVILLE, DARKE AND
MERCER COUNTIES.

Population, 300.

Person making report, Dr. B. G. Inman, health officer.

Board of health spent \$8.00 during the year.

Our health board has been stern and uncompromising in enforcing the health laws and keeping the place in a sanitary condition. This being the rule of action, we have had but little trouble in enforcing the laws without legal prosecution.

Abandoned wells are not used to receive house drainage, or drainage from water closets.

The town is well under drained with large sewer tile, and so located that all private sewage can be drained in them.

No license is required to sell milk, the supply being furnished by citizens and nearby farmers.

I have inspected the sanitary conditions of our schoolhouse and found the school building in good sanitary condition, filling all the requirements of law. Improvements should be made on the school ground, which I think will be done in the near future.

We have adopted no system. As a rule farmers haul the manure to their farms, and the other garbage is disposed of by the property holders by burning or burial.

Method for disinfecting houses after infectious diseases: In disinfecting houses I use formaldehyde with Dr. F. G. Novy's generator. I find it thorough and economical, with many advantages over other generators.

Disinfecting is done by me personally.

BUTLER, RICHLAND COUNTY.

Population, 800.

Person making report, Dr. E. G. Rummel, health officer.

The Board of Health had no expenses during the year.

For violations of health laws or orders of the Board of Health we had one prosecution for keeping hogs in the village after April 1. He took his hogs out of the village and paid the cost of prosecution. No fine was imposed.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses were made as required by law.

We have no system for the collection of garbage.

Each person disposes of his own garbage.

My method for disinfecting houses after infectious diseases is formaldehyde gas.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Rex generator is used, and from one-half to three-fourths pound of formaldehyde per 1,000 cubic feet of air space.

BYESVILLE, GUERNSEY COUNTY.

Population, 2,700.

Person making report, C. C. Large, health officer.

The Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses have been inspected.

Have not been called upon to inspect houses or rooms on account of consumption.

Cases of infectious diseases reported were: Smallpox, 47; scarlet fever, 1. Total number of infectious diseases, 48.

CADIZ, HARRISON COUNTY.

Population, 1,750.

Person making report, Dr. S. B. McGavran, health officer.

The amount spent by the Board of Health during the year was \$175.

There were no prosecutions for violations of health laws or orders of the Board of Health.

We use abandoned wells to receive house drainage, or drainage from privies or water closets.

No action has been taken to stop the practice.

License to sell milk is not required by the board.

No inspection of dairies is made.

Have inspected the sanitary conditions of our schoolhouses as required.

For the collection of garbage we have no regular system.

For disinfecting houses after infectious diseases my method is to use formaldehyde.

Disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have had no calls.

I do not know the name of the generator used.

During the year the following cases of infectious diseases were reported: Smallpox, 2; scarlet fever, 4; typhoid fever, 1; whooping cough 20. Total number of infectious diseases, 27.

CALDWELL, NOBLE COUNTY.

Population, 1,200.

Person making report, Dr. J. L. Gray, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board has not in the past required a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Collection of garbage is made only by common boxes or barrels.

Disposition of the garbage is made by hauling to dumping grounds outside the corporation limits.

Disinfect by means of formaldehyde is my method for disinfecting houses after infectious diseases. We have an apparatus for the use of solidified formaldehyde.

The work of disinfecting is done by me when it is required.

Have not been called upon to disin-

fect houses or rooms on account of consumption.

As I was recently appointed health officer, I have had no occasion to use a generator.

CALEDONIA, MARION COUNTY.

Population, 682.

Person making report, Noah Lee, health officer.

Amount expended by the Board of Health during the year was \$291.13.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Garbage is disposed of by burying.

Method for disinfecting houses after infectious diseases: Use Dr. Leininger's of Chicago, generator twice, and as many times I used a cast iron kettle on the stove, which was very effective.

Disinfecting is done by a trained male nurse.

Have had no calls to disinfect houses or rooms on account of consumption.

Number of cases of infectious diseases reported were: Smallpox, 4. Total number of infectious diseases, 4.

CAMBRIDGE, GUERNSEY COUNTY.

Population, 11,000.

Person making report, T. C. Stanley, city health officer.

During the year the Board of Health expended \$1,081.19.

There were no prosecutions for vio-

lations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk, but asks a small fee for inspecting the dairy.

I have inspected the sanitary conditions of our schoolhouses.

Garbage is collected by teamsters and paid for by parties having work done.

The garbage is hauled to the country and disposed of on a farm.

Method for disinfecting houses after infectious diseases: Formaldehyde gas and sulphur, four pounds to each 1,000 cubic feet of air space. Generate 10 ounces of formaldehyde to each 1,000 cubic feet of air space.

Work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Hydrocarbon Burner Co., of New York, is generator used, and 10 ounces of formaldehyde to each 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 15; diphtheria, 5; scarlet fever, 60; typhoid fever, 14; measles, 26; other infectious diseases, 19. Total number of infectious diseases, 140.

CAMDEN, PREBLE COUNTY.

Population, 1,000.

Person making report, Dr. W. E. Pryor, health officer.

Board of Health expended \$177 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our school-houses were inspected.

We have no system for the collection of garbage.

Garbage is usually disposed of by hauling and dumping on or near the banks of Seven Mile Creek.

For disinfecting houses after infectious diseases we use formaldehyde gas.

The sanitary officer does the work of disinfecting.

Have had no calls to disinfect houses or rooms on account of consumption. Will see to this in the future.

Max Woche & Sons' generator is used, and one pound formaldehyde, 40 per cent. solidified, to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 18; membranous croup, 1; typhoid fever, 1. Total number of infectious diseases, 21.

CANAL DOVER, TUSCARAWAS COUNTY.

Population, 6,000, estimated.

Person making report, H. F. Eppens, health officer.

The amount spent by the Board of Health during the year was, \$717.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

No inspection was made of the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Garbage is disposed of by individuals as they see fit.

Use solidified formaldehyde, one ounce to 1,000 cubic feet of air space. Place small generator in each room to be disinfected and expose every arti-

cle to the fumes is my method for disinfecting houses after infectious diseases.

Disinfecting is done by the sanitary officer, Mrs. Dora Williamson, assisting occasionally myself.

Have never been called upon to disinfect houses or rooms on account of consumption.

Solidified formaldehyde is used, one ounce to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 39; diphtheria, 1; scarlet fever, 2; measles, 40. Total number of infectious diseases, 82.

CANAL FULTON, STARK COUNTY.

Population 1,172.

Person making report, D. K. Jones, clerk Board of Health.

The Board of Health during the year spent \$23.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Not to our knowledge have abandoned wells been used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the dairy is not made before giving the license.

To my knowledge there has been no inspection made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Garbage is not disposed of publicly. Each family disposes of their own.

Carry out instructions of the State Board of Health is my method for disinfecting houses after infectious diseases.

Never have been called upon to disinfect houses or rooms on account of consumption.

Dr. Leininger's generator is used, and one-half to one ounce of solidified formaldehyde.

One case of typhoid fever is the only case of infectious disease reported.

CANTON, STARK COUNTY.

Population, 40,000.

Person making report, Dr. A. V. Smith, health officer.

The amount spent by the Board of Health during the year was \$8,743.23; about \$6,650 by the old board to August 1, at which time I became health officer.

Prosecutions for violations of health laws or orders of the Board of Health, there are none on record. The facts are the previous officers of the board did not keep a record and rendered illegible what the sanitary officer kept. Under the head of infectious diseases, the number given is small and the above statement accounts for it.

Board does not know of any abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk.

The dairy is inspected before giving the license.

I have not as yet inspected the sanitary conditions of our schoolhouses, but expect to soon. I don't think they were inspected previously.

The collection of garbage is made under an ordinance by licensed collectors, in metal cans with metal covers and many other specifications for its proper removal.

Garbage is disposed of by a crematory.

Fumigation with formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the sanitary officer.

Have not been called upon to disinfect houses or rooms on account of consumption.

The generator we are now using is of the Leininger, of Chicago make, which is placed in the room and closed up with everything spread out so that the fumes may easily permeate through them. About two ounces of the liquid is used.

I suggest that our health laws be made more specific.

During the year the following number of cases of infectious diseases were reported: Smallpox, 9; diphtheria, 22; membranous croup, 4; scarlet fever, 13. Total number of infectious diseases, 48.

CARDINGTON, MORROW COUNTY.

Population, 1,354.

Person making report, Dr. Carl T. Warmeling, health officer.

Amount expended by the Board of Health during the year was \$260.

For violations of health laws or orders of the Board of Health there were no prosecutions.

No abandoned wells are reported or known of to be used for house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Do not inspect the dairies.

Have inspected the sanitary conditions of our schoolhouses as required by law.

We have no system for the collection of garbage.

No disposition of the garbage is made by any provision of the corporation but the board issues notices to individuals whenever necessary. We have a dumping ground outside of corporation limits.

My method for disinfecting houses after infectious diseases is to use formaldehyde by generator.

Work of disinfecting is done personally by myself.

Have not been called upon to disinfect houses or rooms on account of consumption.

I use the Novy generator, P., D. & Co. Amount of formaldehyde used is 8 to 10 ounces per 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 5; scarlet fever, 2; typhoid

fever, 4. Total number of infectious diseases, 11.

We kept no record of whooping cough or measles.

CAREY, WYANDOT COUNTY.

Population, 2,000.

Person making report, Joseph F. Wander, health officer.

Seven dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspected the sanitary conditions of our schoolhouses. They were found to be in good sanitary condition.

Collection of garbage is made by a regular appointed scavenger under my personal supervision.

Garbage is disposed of by carting to city dumping ground specially provided by city council for that purpose only and buried by the city scavenger.

Thoroughly fumigate with formaldehyde and close doors for six hours thereafter is my method for disinfecting houses after infectious diseases.

The disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I had no calls.

Dr. George Leininger's generator is used. I use a sufficient quantity of formaldehyde to cause extreme distaste to myself.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 7; scarlet fever, 1; typhoid, 1; whooping cough, 2; measles, 2; other infectious diseases, 5. Total number of infectious diseases, 21.

CARLISLE, NOBLE COUNTY.

Population, 132.

Person making report, W. R. Bramhall, health officer.

Amount spent by the Board of Health during the year was \$38.40.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have made inspection of the sanitary conditions of our schoolhouses as required.

Have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Boil all articles that can be boiled and burn what cannot be boiled or fumigated.

The work is done by myself.

Have had no calls to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used per 1,000 cubic feet of air space is one ounce.

Cases of infectious diseases reported: Smallpox (old and new), 28. Total number of infectious diseases, 28.

CARROLLTON, CARROLL COUNTY.

Population, estimated 1,700.

Person making report, Dr. A. H. Hise, health officer.

Board of Health expended \$593.39 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There has been no report of abandoned wells used to receive house drainage, or drainage from privies or water closets.

If any abandoned wells are found to be in use action will be taken to stop the practice.

Board does not require a license to sell milk.

The sanitary conditions of our

schoolhouses were inspected as required by law.

We have no system for the collection of garbage.

Garbage is disposed of by dumping outside of corporation.

I use formaldehyde for disinfecting houses after infectious diseases.

The work of disinfecting is done by Dr. Zeigler.

Have been called upon once to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and the solidified formaldehyde according to his direction.

I would suggest more independence be used to offset criticism.

During the year the following cases of infectious diseases were reported: Smallpox, 16; typhoid fever, 15; other infectious diseases, 1. Total number of infectious diseases, 32.

CARTHAGE, HAMILTON COUNTY.

Population (census of 1900), 2,559.

Person making report, Samuel B. Gilchrist, health officer.

Amount expended by the Board of Health during the year: Health officer's salary, \$150; stamps, 50 cents; attorney's fees \$10. Total, \$160.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

At present there are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No action has been taken during the past year to stop the practice of using abandoned wells.

A license to sell milk is not required by the board.

My predecessor inspected the sanitary conditions of our schoolhouses. We have but two school buildings, the Carthage Public School and the Catholic School. Both are in good sanitary condition.

The collection of garbage is made by a village employe in an open wagon.

Garbage is disposed of outside of the corporation on a dump allowed for that purpose.

I have no special method for disinfecting houses after infectious diseases. I generally burn sulphur, except in cases of smallpox, then the village has paid for it, the parties using formaldehyde generator.

Do not know what my predecessor did. I have not been called upon to disinfect houses or rooms on account of consumption since I assumed the office.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 9; typhoid fever, 3; measles, 57. Total number of infectious diseases, 70.

CASSTOWN, MIAMI COUNTY.

Population, 275.

Person making report, Dr. W. W. Baker, health officer.

Nothing was expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no schoolhouse within the corporation.

Have no system for the collection of garbage.

No disposition is made of the garbage. Garbage cuts no figure here.

Had no occasion to disinfect houses after infectious diseases.

Have never been called upon to disinfect houses or rooms on account of consumption.

Number of cases of infectious diseases reported during the year: Typhoid fever, 1. Total number of infectious diseases, 1.

CECIL, PAULDING COUNTY.

Population, 326.

Person making report, Dr. Seth E. DeMuth, health officer.

Have inspected the sanitary conditions of our schoolhouses.

Cases of infectious diseases reported: Typhoid fever, 5. Total number of infectious diseases, 5.

CEDARVILLE, GREENE COUNTY.

Population, 1,500.

Person making report, J. M. Bromagem, clerk of Board of Health.

Amount spent by the Board of Health during the year was \$145.55.

No prosecutions were had for violations of health laws or orders of the Board of Health. Orders are complied with.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk. Our dairies are all in the country and are known to be clean.

Inspection of the sanitary conditions of our schoolhouses was made.

Owners are required to collect and remove their garbage.

For the disposal of garbage we have leased a dumping ground one mile from the village, where garbage is buried.

The usual method for disinfecting houses after infectious diseases is used.

Health officer does work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 1; measles, 4. Total number of infectious diseases, 6.

CELINA, MERCER COUNTY.

Population, 3,800.

Report made by Health Officer Dr. Joseph Sager.

About \$500 was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were not inspected, as the Board of Education did not request inspection by the Board of Health.

The Board of Health employed a garbage collector to gather the garbage once a week, burn or bury the same, but the council has rescinded the action of the Board of Health.

Fumigating with formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by the sanitary officer.

Have had only one occasion to disinfect houses or rooms on account of consumption.

Generator used is of the Park, Davis make. One pint of formaldehyde to 4000 cubic feet of air space is used.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 6; whooping cough, 12; measles, 12. Total number of infectious diseases, 33.

CENTERVILLE, MONTGOMERY COUNTY.

Population, 300.

Person making report, Dr. B. W. Duffley Keever, health officer.

Nothing was expended by the Board of Health during the year.

No prosecutions were had for viola-

tions of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Sanitary conditions of our school-houses were inspected.

Each family disposes of its own garbage. We have an excellent drainage system and every family has a pride in keeping everything in good order.

Have had no occasion to use any method for disinfecting houses after infectious diseases, but would use formaldehyde.

CHAGRIN FALLS, CUYAHOGA COUNTY.

Population, 1,700.

Person making report, W. J. Clark, health officer.

Board of Health spent \$25 during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Disposition of garbage is made by each family.

Formaldehyde sprayed and burned is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Home-made spray is used for spraying formaldehyde.

During the year the following cases of infectious diseases were reported: Typhoid fever, 1; measles, 9; other infectious diseases, 2. Total number of infectious diseases, 12.

CHESTERHILL, MORGAN COUNTY.

Population, 500.

Person making report, F. L. Mercer, health officer.

Five dollars were spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have no dairies.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

Disposition of the garbage is made by each family.

My method for disinfecting houses after infectious diseases is to burn sulphur and use carbolic acid.

I have never been called upon to disinfect houses or rooms on account of consumption.

Have no cases of infectious diseases to report.

CHEVIOT, HAMILTON COUNTY.

Population about 900.

Person making report, Charles Craig, health officer.

Amount spent by the Board of Health during the year was \$107.75.

For violations of health laws we have had one prosecution—for starting to clean privy vault without per-

mission from health officer. The penalty imposed was \$5 and costs. The fine was remitted and defendant paid the costs.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Have no school within the corporate limits. Cincinnati (Ohio) school system embraces the corporation of Cheviot.

Have no system for the collection of garbage, but there will likely be some action taken this winter looking to the disposal of garbage. Heretofore, the houses being so far apart, it was hardly necessary, but as it is now beginning to build up I shall agitate the question of having an ordinance passed by council to that effect.

Method for disinfecting houses after infectious diseases: Use formaldehyde.

I have had no occasion as yet to disinfect any house.

Have had no calls to disinfect houses or rooms on account of consumption.

Generator used is George Leininger's. Use solidified formaldehyde. Directions say for each 1,000 cubic feet of air space to use one-half of one ounce.

CHICAGO JUNCTION, HURON COUNTY.

Population, 3,000.

Person making report, W. G. Greenup, clerk of Board of Health.

During the year the Board of Health spent \$450.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection is not made of the dairy before giving the license.

I have inspected the sanitary conditions of our schoolhouses as required.

System for collecting garbage is man with wagon and barrels.

Disposition of garbage is made by burning and burying.

My method for disinfecting houses after infectious diseases is to disinfect with formaldehyde.

Dr. Kaufman, health officer, does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Membranous croup, 3; typhoid fever 4. Total number of infectious diseases, 7.

CHICKASAW, MERCER COUNTY.

Population, 310.

Person making report, H. S. Schaefer, Mayor.

Board of Health spent nothing during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have no dairies here.

Inspection of the sanitary conditions of our schoolhouses was made.

CHILLICOTHE, ROSS COUNTY.

Population, 16,000.

Person making report, Dr. W. S. Scott, health officer.

Board of Health expended \$2,313.51 during the year.

Prosecutions for violations of health laws or orders of the Board of Health were: One prosecution and conviction for keeping hogs, \$20 and costs;

one prosecution and conviction for keeping hogs, \$5 and costs; one prosecution and conviction for distributing night soil on streets, \$5 and costs.

Not to our knowledge have abandoned wells been used to receive house drainage, or drainage from privies or water closets.

The board requires a license to sell milk.

Two inspections of dairies a year are made.

Two and often more inspections are made of the sanitary conditions of our schoolhouses.

For the collection of garbage the city is divided into four districts with one garbage cart for each district.

Garbage is disposed of by being taken to a dump outside of the city limits, where the greater part of it is burned.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done either by myself or the sanitary officer.

Seven houses have been fumigated on account of tuberculosis.

Dr. George Leininger's large sized lamp is used.

Cases of infectious diseases reported: Smallpox 27; diphtheria, 31; membranous croup, 2; scarlet fever, 25; measles, 5. Total number of infectious diseases, 90.

Cases of typhoid fever and whooping cough were not reported.

CINCINNATI, HAMILTON COUNTY.

Population, 346,000, estimated.

Person making report, Dr. Clark W. Davis, health officer.

Amount spent by the Board of Health during the year was \$58,338.65.

Prosecutions were had for selling milk below standard, failing to make sewer connections and collecting garbage from hotels.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

The dairy is inspected before the license is given.

Sanitary conditions of our schoolhouses were inspected as required by law.

Garbage is collected daily in sheet iron wagons.

The garbage is incinerated daily.

Method for disinfecting houses after infectious diseases: Formaldehyde gas.

Work of disinfecting is done by the health department.

Have been called upon to disinfect 902 houses or rooms on account of consumption.

Generators used are four Mulfords and one West. Twelve ounces of formaldehyde are used per 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 170; diphtheria and membranous croup, 405; scarlet fever, 499; typhoid fever, 1,644; whooping cough, 52; measles, 1,828; other infectious diseases, 823. Total number of infectious diseases, 5,421.

CIRCLEVILLE, PICKAWAY COUNTY.

Population, 7,000.

Person making report, W. H. Dunkel, secretary and health officer.

Amount spent by the Board of Health during the year, \$292.96.

Very few if any abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Have inspected the sanitary conditions of our schoolhouses; twice in spring term and commencement of fall term.

We have no system for the collection of garbage.

Garbage is generally collected by

persons and hauled out of the city and fed to hogs.

Disinfect houses with a Park-Davis formaldehyde machine, using 40 per cent. solution of formaldehyde is my method for disinfecting houses after infectious diseases.

I do all this work personally.

To disinfect houses or rooms on account of consumption I have had 23 calls.

I use the Park-Davis machine. I always find out how much space there is in the rooms. I use three or four ounces to 1,000 cubic feet of air space.

I would suggest members should be paid for their services, we would have better attendance at Board meetings

Cases of infectious diseases reported during the year: Smallpox, 2; membranous croup, 2; scarlet fever, 7; typhoid fever, 11; measles, 33. Total number of infectious diseases, 55.

CLARINGTON, MONROE COUNTY.

Population, 900.

Person making report, T. S. Strickling, clerk of Board of Health.

Sixty dollars was amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Upon inspection we find our schoolhouse in good repair and kept in the best sanitary condition.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: We use a generator and formaldehyde.

The disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

We have a Lentz generator, and use from a quart to a gallon of formaldehyde to 1,000 cubic feet of air space.

The number of cases of infectious diseases were: Typhoid fever, 1; whooping cough and pneumonia, 1. Total number of infectious diseases, 2.

CLARKSBURG, ROSS COUNTY.

Population, 551.

Person making report, A. J. Tharp, health officer.

Nothing except the health officer's salary, \$1.00 per month, was expended by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

We have no dairies.

Garbage is collected by individuals but we have no system. Rubbish is hauled out of town.

Have had no method for disinfecting houses after infectious diseases.

Have never been called upon to disinfect houses or rooms on account of consumption.

CLARKSVILLE, CLINTON COUNTY.

Population, 450.

Person making report, Luther Snook, health officer.

During the year the Board of Health spent nothing except about \$14 for disinfectants for measles.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection was made of the sanitary conditions of our schoolhouses as required by law.

We have no system for the collection of garbage.

Each family disposes of their own garbage.

The method used for disinfecting houses after infectious diseases was: I used formaldehyde and corrosive sublimate and large quantities of sulphur in all cases. I have a large sized generator.

Disinfecting is done by myself or under my immediate supervision.

Not at any time have I been called upon to disinfect houses or rooms on account of consumption.

Use George Leininger's generator, large size, and use three ounces of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Measles, 14. Total number of infectious diseases, 14.

CLEVELAND HEIGHTS, CUYAHOGA COUNTY.

Population, 2,000.

Person making report, Dr. W. E. Shackleton, health officer.

Board of Health spent \$50 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

Have no system for the collection of garbage.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

Work is done by myself or marshal.

Have not been called upon to disinfect houses or rooms on account of consumption.

The Novy generator is employed,

using 10 ounces of formaldehyde to 1,000 cubic feet of air space.

Following were the cases of infectious diseases reported: Typhoid fever, 1; whooping cough, 2. Total number of infectious diseases, 3.

CLEVES, HAMILTON COUNTY.

Population, 1,500.

Person making report, W. C. Cooper, health officer.

Approximately \$40 were spent during the year by the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

I do not know whether the sanitary conditions of our schoolhouses were inspected or not, as the officer who was then in charge has left the country. The new official assumes control within a week, when it is thought the affairs will be run more systematically. I am only filling the position temporarily.

No system is employed for the collection of garbage.

Disposition of the garbage is made by each family in its own way. Many keep cows and hogs.

My method for disinfecting houses after infectious diseases is to burn sulphur.

The disinfecting is done under the supervision of the health officer.

I have had two calls to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported during the year: Diphtheria, 7; membranous croup, 6; scarlet fever, 4; typhoid fever, 12; whooping cough, 7; measles, 95; other infectious diseases, 15. Total number of infectious diseases, 117.

CLYDE, SANDUSKY COUNTY.

Population, 3,000, estimated.

Person making report, F. G. Tuttle, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Not to my knowledge have abandoned wells been used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected. The board has stopped the use of closets in the building. The vaults outside are O. K. I have fumigated the school building. School Board owns its own generator now. It is of the Novy make. Their janitor does the work. Sanitary conditions are good.

For the collection of garbage we have no system; everybody takes care of his own or pays for it.

Garbage is disposed of by hauling to the dump.

Method for disinfecting houses after infectious diseases: I use a formaldehyde generator and wipe the woodwork with a solution of bi-chloride of mercury.

I always use the generator myself, and sometimes wash the woodwork. At times the man or woman who helps to clean house attends to the woodwork under my instructions.

I think I had two or three calls to disinfect houses or rooms on account of consumption.

The name of the generator used is of the F. G. Novy make and sold by Park, Davis & Co., Detroit, Mich. The amount of formaldehyde used is governed by the amount of clothing and bed clothes in the room. In case it was the sick room I have used a pint and more of the 40 per cent. solution to the thousand cubic feet.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 3. Total number of infectious diseases, 4.

COALTON, JACKSON COUNTY.

Person making report, J. C. Duncan, health officer.

Amount spent by the Board of Health during the year was \$75.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

We request the people to collect garbage and the City Street and Alley Committee has the same removed.

Garbage is disposed of by hauling it away.

Method for disinfecting houses after infectious diseases: Wash, scrub; use sulphur and other disinfectants.

Work of disinfecting is done by me.

Have never been called upon to disinfect houses or rooms on account of consumption.

Following are the cases of infectious diseases reported: Smallpox, 1; diphtheria, 2; scarlet fever, 1. Total number of infectious diseases, 4.

COLUMBUS, FRANKLIN COUNTY.

Population, 170,000.

Person making report, E. A. Moriarty, clerk.

Following is the amount expended by the Board of Health during the year: For general administration, \$16,700; for smallpox, \$7,761.73.

There were twelve prosecutions for violations of health laws or orders of the Board of Health, as follows: One for failure to take out license to sell meat, convicted; one for selling unwholesome meat, convicted; one for failure to take out license to sell milk, convicted; nine for miscellaneous offenses, such as failure to clean vaults and abate nuisances after sanitary officers had ordered the same done.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

This practice has been stopped.

The board requires a license to sell milk.

Inspection is made of the dairy before the license.

Have inspected the sanitary conditions of our schoolhouses as required by law.

The collection of garbage is made by a private corporation from house to house.

Garbage is disposed of by hauling to their plant and cremated. (The Board of Service has this work in hand now.)

Fumigation with 40 per cent. formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by Official Fumigator Timothy Shea.

In about 75 per cent. of all deaths that are reported at this office I am called upon to disinfect houses or rooms on account of consumption.

The West No. 2 generator is used and 12 ounces of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 112; diphtheria, 161; scarlet fever, 127; typhoid fever, 1,861; whooping cough, 72; measles, 98. Total number of infectious diseases, 2,431.

COLUMBUS GROVE, PUTNAM COUNTY.

Population, 2,000.

Person making report, J. F. Bogart, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouse was made. The

schoolhouse is in fine condition, and the pupils in good health. We had no epidemics in the school this year.

Garbage is collected and hauled away by drays.

The garbage is disposed of by burying it.

My method for disinfecting houses after infectious diseases is to use formaldehyde and sometimes sulphur.

Disinfecting is sometimes done by me and sometimes by the occupants.

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and amount of formaldehyde, one ounce.

During the year the following cases of infectious diseases were reported: Membranous croup, 1; scarlet fever, 1; typhoid fever, 5; measles, 4. Total number of infectious diseases, 11.

CONGRESS VILLAGE, WAYNE COUNTY.

Population, 200.

Person making report, George C. Esick, member of Board of Health.

Board of Health spent \$5 during the year.

We have one abandoned well used for cellar drainage.

So far no action has been taken to stop the practice.

Board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

We have no regular method of our own for disinfecting houses after infectious diseases, but depend on our doctors to attend to the proper disinfecting of houses.

Disinfecting is done by one of the two doctors in town.

Have not had a case of consumption in 20 years.

Cases of infectious diseases reported during the year: Typhoid fever, 1; whooping cough, 20; measles, 40. Total number of infectious diseases, 61.

During the year the following cases of infectious diseases were reported: Smallpox, 4; diphtheria, 18; membranous croup, 3; scarlet fever, 8; typhoid fever, 51; measles, 25. Total number of infectious diseases, 109.

CONNEAUT, ASHTABULA COUNTY.

Population, 7,000 to 8,000.

Person making report, Dr. O. N. Warner, health officer.

Amount spent by the Board of Health during the year, \$626.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required.

The sanitary conditions of our schoolhouses were inspected.

Garbage is carried to the dumping grounds. We have no system for the collection of garbage.

The garbage is collected by anyone and disposed of on dumping grounds.

Method for disinfecting houses after infectious diseases: Disinfect with formalin by fumigation and close the rooms tightly for eight or ten hours thereafter.

The sanitary officer does the work of disinfecting.

Never had any calls to disinfect houses or rooms on account of consumption.

We use the 40 per cent. solution formaldehyde and from 10 to 15 ounces to each 1,000 cubic feet of air space.

I suggest reporting all cases of tuberculosis to the proper authorities and to disinfect the houses infected with tuberculosis, and that obscure causes of death such as "child birth," "general debility," "dropsy," etc., be not accepted. A list of same should be furnished each physician and some method adopted. A list such as sent out by the health officers for monthly reports would be quite satisfactory.

CONVOY, VAN WERT COUNTY.

Person making report, Dr. C. D. Sidle, health officer.

The Board of Health expended \$8.65 during the year.

For violations of health law or orders of the Board of Health, there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

Disinfect with formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have had one call to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is about one pint.

Cases of infectious diseases reported: Diphtheria, 1; membranous croup, 1; typhoid fever, 1. Total number of infectious diseases, 3.

COSHOCTON, COSHOCTON COUNTY.

Population, 6,473 (census of 1900).

Person making report, Dr. J. E. Foster, health officer.

During the year the Board of Health expended \$1,961.97.

For violations of health laws or orders of the Board of Health, the following prosecutions were had: Health officer arrested three physicians for failing to report smallpox. They were not brought to trial. For violations of garbage ordinances there were five arrests. In three cases no fines were imposed, parties agreeing to remove nuisances created; two were fined \$1 and costs.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were not inspected.

Garbage is collected by persons in the country engaged in the swine industry. When the garbage becomes a nuisance we order it removed to the dump ground.

Some of the garbage is burned on the dump ground, but most of it is buried.

Method for disinfecting houses after infectious diseases: We use sulphur according to instructions of the State Board of Health.

Disinfecting is done by the health officer. On two occasions the health officer instructed the household to do the work.

I have been called upon twice to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 77; diphtheria, 6; scarlet fever, 32; typhoid fever, 14; whooping cough, 37; measles, 126; other infectious diseases, 23. Total number of infectious diseases, 315.

CORNING, PERRY COUNTY.

Population, 2,000, estimated.

Person making report, Wm. Anderson, health officer.

Board of health spent \$100 during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses is made each month.

We have no system for the collection of garbage.

Disposition of the garbage is made by dumping in the woods.

Method for disinfecting houses after infectious diseases: Formaldehyde lamp.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Following cases of infectious diseases were reported: Diphtheria, 2; scarlet fever, 6; whooping cough, 10; measles, 20; other infectious diseases, 30. Total number of infectious diseases, 60.

CORTLAND, TRUMBULL COUNTY.

Population, 800.

Person making report, L. Hutton, clerk of Board of Health.

During the year the Board of Health expended \$66.20.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

My method for disinfecting houses after infectious diseases is to spray formaldehyde and very free use of sulphur.

The attending physician does the work of disinfecting.

Dr. F. G. Novy's generator is used,

and about one and one-half pints of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Membranous croup, 2; typhoid fever, 2; measles, 2. Total number of infectious diseases, 6.

COVINGTON, MIAMI COUNTY.

Population, 2,000.

Person making report, W. E. Westfall, health officer.

Board of Health spent \$150 during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses as required.

Method for disinfecting houses after infectious diseases: A sanitary formaldehyde generator is used.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

I use H. K. Mulford & Co.'s generator, and about 10 to 12 ounces of formaldehyde to each 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Diphtheria, 1; membranous croup, 2; scarlet fever, 7; typhoid fever, 3; whooping cough, 1; measles, 46. Total number of infectious diseases, 60.

CRESTLINE, CRAWFORD COUNTY.

Population, 3,500.

Person making report, Dr. C. A. Marquart, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used

to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

No inspection was made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Under my directions the sanitary officer does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

During the year cases of infectious diseases were reported as follows: Diphtheria, 5; scarlet fever, 10; typhoid fever, 1; measles, 12; other infectious diseases, 1. Total number of infectious diseases, 29.

CRESTON, WAYNE COUNTY.

Population, 1,000.

Person making report, C. A. Mellen, health officer.

The amount spent by the Board of Health during the year was \$1.50.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected, and saw that they were disinfected and the sanitary conditions placed in good shape and kept so during the term.

Garbage is collected in barrels.

I have it placed in barrels and hauled outside the corporation limits, where a place has been provided for the disposal of garbage.

Method for disinfecting houses after infectious diseases: I use a large gas

generator manufactured by Park, Davis & Co., Detroit, Mich., and use solid formaldehyde, following the directions laid down by the State Board of Health.

Disinfecting is done by me personally.

I have never been called upon to disinfect houses or rooms on account of consumption.

Park, Davis & Co., Detroit, Mich., manufacture the generator used. I use from four to eight ounces of formaldehyde, according to nature of contagion and conditions.

Cases of infectious diseases reported: Scarlet fever, 3. Total number of infectious diseases, 3.

CRIDERSVILLE, AUGLAIZE COUNTY

Population, 650.

Person making report, F. L. Newcomer, health officer.

Amount spent by the Board of Health during the year was \$37.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected as required.

To disinfect houses on account of consumption I have had no calls.

CROTON, LICKING COUNTY.

Population, 350 or 400.

Person making report, Dr. C. B. Hempsted, health officer.

About \$16.15 was the amount the Board of Health expended during the year.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

Each family disposes of its own garbage.

Sulphur candles is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by some competent person.

Have never been called upon to disinfect houses or rooms on account of consumption.

Total number of infectious diseases reported during the year were 5, as follows: Scarlet fever, 4; typhoid fever, 1.

CUMBERLAND, GUERNSEY COUNTY.

Population, 670.

Person making report, H. Martin, health officer.

Board of Health spent \$87 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected as required.

Have no system for the collection of garbage.

Garbage is disposed of by hauling out of corporation by each individual.

Method for disinfecting houses after infectious diseases: Formaldehyde. Have a large generator.

I have not had any disinfecting to

do. Dr. Walters has done the work heretofore.

Have had no calls to disinfect houses or rooms on account of consumption.

The Lentz generator is used and eight ounces of 40 per cent. formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 8. Total number of infectious diseases, 8.

CUSTAR, WOOD COUNTY.

Population, 350.

Person making report, Joseph Metzger, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made. The rooms were fumigated between Christmas and New Year.

We have no system for the collection of garbage.

Owners of the garbage dispose of it by hauling it away or burning it in the alleys.

The work of disinfecting is done by the doctors.

CUYAHOGA FALLS, SUMMIT COUNTY.

Population, 3,500.

Person making report, W. W. Scupholm, health officer.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses were inspected as required by law.

For the collection of garbage we have no system.

Since my connection with the office I have had very little occasion for disinfection, but have used sulphur and formaldehyde, evaporating the latter by burning sulphur. In cases of diphtheria also used corrosive sublimate fumes in addition to above.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Diphtheria, 2; typhoid fever, 2. Total number of infectious diseases, 4.

DAYTON, MONTGOMERY COUNTY.

Population, 100,000, estimated.

Person making report, John S. Heindl, clerk.

Following is the amount expended by the Board of Health during the year: From regular fund, \$9,043.93; from special fund, for smallpox, \$18,113.83.

There were nine prosecutions for violations of health laws or orders of the Board of health, as follows: One for concealing a case of smallpox, fined \$15 and costs; five cases for violating the milk ordinance, one dismissed, one found not guilty by jury, one fined \$1 and costs, one fined \$5 and costs and one fined costs; one case for filling vault without cleaning, fined \$10 and costs; one for refusing to abandon a vault, \$1 and costs; one for defective plumbing, settled out of court.

In a few instances abandoned wells have been used to receive drainage from kitchen sinks.

The board requires a license to sell milk.

Inspection is made of the dairy before giving the license.

A thorough inspection was made of the sanitary conditions of our school-houses in 1903.

The garbage system is under control of Board of Public Service.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Sanitary officers do the work of disinfecting.

Have been called upon to disinfect houses or rooms on account of consumption about twenty times.

We use the West Disinfecting Co. generator. Amount of formaldehyde used is six ounces per 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 176; diphtheria, 51; scarlet fever, 61; typhoid fever, 27; measles, 278; other infectious diseases, 49. Total number of infectious diseases, 648.

DEFIANCE, DEFIANCE COUNTY.

Population, 9,000, estimated.

Person making report, Dr. J. D. Westrick, health officer.

This board, in existence since June 1, 1904, spent \$233.42.

No prosecutions were had for violations of health laws or orders by the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Collection of garbage is made by the city scavenger.

Garbage is collected and hauled about one mile in the country and disposed of as fertilizer, etc.

Method for disinfecting houses after infectious diseases: We disinfect with formaldehyde (solidified). The city now uses Dr. George Leininger's gen-

erator. Our method and aim is to close all openings around doors and windows with paper strips, gummed.

Disinfecting is done by myself or sanitary policeman.

Have had two calls to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is one-half to one ounce.

Cases of infectious diseases reported: Typhoid fever, 5; whooping cough, 1; measles, 1; other infectious diseases, 2. Total number of infectious diseases, June 1 to December 31, 1904, 9.

DE GRAFF, LOGAN COUNTY.

Population, 1,200.

Person making report, Roy Ross, clerk of Board of Health.

During the year the Board of Health spent \$704.94.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Property owners are given notice to haul their garbage away.

Fumigating is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by either the health officer or a physician.

Have had no calls to disinfect houses or rooms on account of consumption.

There were no cases of infectious diseases reported.

DELAWARE, DELAWARE COUNTY.

Person making report, Dr. O. W. Bonner, health officer.

Eight hundred dollars was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

The schoolhouses are in good sanitary condition, as regards to light, heat, etc.

Have no system for the collection of garbage.

Two or three men who make it a business, look after garbage barrels and haul it out of the city, where it is fed to hogs. Other garbage is also taken care of by them.

Formaldehyde and sulphur as laid down by the State Board of Health is our method for disinfecting houses after infectious diseases.

Work of disinfecting is done by the sanitary officer.

During the year I have had two or three calls to disinfect houses or rooms on account of consumption.

The Novy formaldehyde generator is used and about 10 ounces of formaldehyde per 1,000 cubic feet of air space.

Number of cases of infectious diseases reported during the year were: Diphtheria, 2; membranous croup, 1; scarlet fever, 86; typhoid fever, 18; whooping cough, 10; measles, 15. Total number of infectious diseases, 132.

DELHI, HAMILTON COUNTY.

Population, 500 to 800.

Person making report, Walter Stone, secretary of Board of Health.

About \$30 was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used that we know of to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made as required.

We have no system for the collection of garbage. Every family is supposed to dispose of it at their own expense, which is either fed to stock or poultry or burned.

Our method for disinfecting houses after infectious diseases is to use formaldehyde.

The work is done by either the attending physician or John Quartar, of Cincinnati, O., who makes disinfecting his business.

During the past year I have been called upon once to disinfect houses or rooms on account of consumption.

DELL ROY, CARROLL COUNTY.

Population, 600.

Person making report, A. H. Kibler, health officer.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

Have never been called upon to disinfect houses or rooms on account of consumption.

DELPHOS, ALLEN AND VAN WERT COUNTIES.

Population, 4,517.

Person making report, Dr. N. E. Brundage, health officer.

Board of Health spent \$474.71 during the year. This includes salaries of health officer and sanitary police.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no garbage system.

Garbage is disposed of by carting to dump ground outside of village.

Formaldehyde (solidified) and sulphur is my method for disinfecting houses after infectious diseases. Clothing and bedding that cannot be disinfected is burned.

The work of disinfecting is done by me personally.

Had one call to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and two ounces of the Leininger solidified formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Scarlet fever, 48; measles, 1. Total number of infectious diseases, 49.

DELTA, FULTON COUNTY.

Population, 1,400.

Person making report, J. A. Grandy, clerk of Board of Health.

About \$200 were expended by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Use formaldehyde and sulphur.

Dr. P. S. Bishop does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Diphtheria, 1; scarlet fever, 8; measles, 1. Total number of infectious diseases, 10.

DENNISON TUSCARAWAS COUNTY.

Population, 4,000.

Person making report, Dr. L. H. Hughes, health officer.

Amount spent by the Board of Health during the year was \$514.61.

For violations of health laws or orders of the Board of Health there was one prosecution, as follows: For failing to report case of diphtheria, convicted and fined \$25.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected as required by law.

Collection of garbage is made by wagon.

Garbage is disposed of by hauling out of corporate limits and dumping and partly burning.

Fumigating with formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Mulford generator is used.

Number of cases of infectious diseases reported were: Smallpox, 13; diphtheria, 10; scarlet fever, 5. Total number of infectious diseases, 28.

Dr. George Leininger's generator is used. I use about one-half ounce of solidified formaldehyde to 1,000 cubic feet of air space.

Two cases of scarlet fever were the only infectious diseases reported during the year.

DESHLER, HENRY COUNTY.

Population, 2,000.

Person making report, Isaac Collier, health officer.

The Board of Health expended during the year the following amount: Stationery and disinfectants, \$14.65; health officer's salary, \$75. Total, \$89.65.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

We have but one dairy. It is inspected by the state inspector. No license is required to sell milk; everybody sells milk.

Inspection of the sanitary conditions of our schoolhouses was made.

For the collection of garbage we have no regular system.

Some of the garbage is disposed of by burying and some hauled away and dumped along the highways. We have no dump ground. I met with the council and suggested that they lease or purchase a dump ground, but they refused. The Mayor said it was my business to notify the people and it was their duty to clean up.

Method for disinfecting houses after infectious diseases: I follow the special directions given by Dr. George Leininger for disinfecting rooms with solidified formaldehyde, and spray the liquid.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

DEXTER CITY, NOBLE COUNTY.

Population, 400.

Person making report, Dr. E. E. Coburn, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary condition of our schoolhouses was not made.

No system is employed for the collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

L. D. Headly, undertaker, does the disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

I use the pyramids.

DILLONVALE, JEFFERSON COUNTY.

Population, 2,000.

Report made by Health Officer Dr. J. C. Jones.

During the year the Board of Health spent \$110.

Prosecutions for violations of health laws or orders of the Board of Health there were two, for breaking quarantine. Both were fined.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Garbage is collected and carted away.

Disposition of the garbage is made by burning or burying.

My method for disinfecting houses after infectious diseases is to use formaldehyde in a special steam generator.

A member of the Board of Health or myself does the work of disinfecting.

Within the year I have had two calls to disinfect houses or rooms on account of consumption.

Lentz's formaldehyde generator is used. The amount used is 10 ounces.

Cases of infectious diseases reported: Diphtheria, 40; membranous croup, 2; typhoid fever, 2; whooping cough, 10. Total number of infectious diseases, 54.

DRESDEN, MUSKINGUM COUNTY.

Population, 1,600.

Person making report, C. W. Carter, health officer.

Amount spent by the Board of Health during the year was \$95.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made. The schoolhouses are inspected and disinfected twice a year whether they need it or not.

Garbage is collected and removed to a dumping ground, where it is disposed of by burning.

Method for disinfecting houses after infectious diseases: Disinfect with formaldehyde and use a generator.

The work of disinfecting is done by me personally.

Have been called upon three times to disinfect houses or rooms on account of consumption.

Three pints for a room 16 feet square is the amount of formaldehyde I use.

One case of typhoid fever was the only infectious disease reported.

DUBLIN, FRANKLIN COUNTY.

Population, 400.

Person making report, Dr. L. M. McKittrick, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

The garbage is disposed of by throwing in back yards, streets and alleys of the village.

Method for disinfecting houses after infectious diseases: I use formaldehyde in some cases and sulphur in others.

Work of disinfecting is done by me.

Had one call to disinfect houses or rooms on account of consumption.

I use a copper can as a container for the formaldehyde under which I place a wood alcohol burner to eliminate the gas.

Following were the cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 1; typhoid fever, 1; whooping cough, 4; measles, 1. Total number of infectious diseases, 8.

DUNKIRK, HARDIN COUNTY.

Population, 1,500.

Person making report, Dr. H. C. Neff, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions was made as required.

No system is employed for the collection of garbage. Each individual collects his own, hauls it outside the corporation limits and disposes of it by burying.

I generally use sublimated sulphur in an open vessel with all apertures leading from the rooms closed up as a method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

We have a formaldehyde fumigator, but I have not used it. It is still in possession of the former health officer.

DUPONT, PUTNAM COUNTY.

Population, 500.

Person making report is Health Officer H. P. Songer.

Amount spent by the Board of Health during the year was \$15.15, \$10.15 of this amount being for the salary of the health officer, \$5 for drainage.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made. Found same in a fair sanitary condition.

We have no system for the collection of garbage.

Disposition of the garbage is made by burying it in vacant land outside the village.

I have had no experience in disinfecting houses after infectious diseases. We have had only two cases that required disinfecting and Dr. E. H. Bird attended to them.

Dr. E. H. Bird does the work of disinfecting.

Cases of infectious diseases reported: Typhoid fever, 1; whooping cough, 10; measles, 8; other infectious diseases, 7. Total number of infectious diseases, 26.

EAST CLEVELAND, CUYAHOGA COUNTY.

Population, 6,000 or 7,000.

Person making report, J. H. Stamberger, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

To sell milk a license is required by the board.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions was made as required by law.

Garbage is collected by a private individual at a cost of 20 cents per week.

Throw it on the ground and plow it under is the disposition made of the garbage.

Use Park-Davis formaldehyde generator for disinfecting houses after infectious diseases.

Work of disinfecting is done by myself.

Had one call to disinfect house or rooms on account of consumption.

Don't know the amount of formaldehyde used. I use plenty of it.

I think one man who is thorough in his work and tends to his business is worth more than a whole board of health if he is given full power to enforce the laws and ordinances.

Following were the cases of infectious diseases reported: Diphtheria, 7; scarlet fever, 2; typhoid fever, 5. Total number of infectious diseases, 14.

EAST LIVERPOOL, COLUMBIANA COUNTY.

Population, 20,000.

Person making report, Dr. C. B. Ogden, health officer.

Amount spent by the Board of Health during the year: Salaries and general expenses, \$1,280; smallpox expenses, \$3,040.59. Total, \$4,320.59.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The dairy is inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

System for the collection of garbage is: Haul in air tight wagons.

The garbage is disposed of by burning it in a furnace.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

To disinfect houses or rooms on account of consumption I have been called four times.

Amount of formaldehyde used is eight ounces.

Cases of infectious diseases reported: Smallpox, 31; diphtheria, 30; membranous croup, 6; scarlet fever, 14; typhoid fever, 25; whooping cough, 40; measles, 5. Total number of infectious diseases, 151.

EAST PALESTINE, COLUMBIANA COUNTY.

Population, 2,500.

Person making report, L. Neville, health officer.

Board of Health spent \$125.90 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

We have the garbage collected and taken outside the corporate limits and burned.

Garbage is disposed of by burning.

Method for disinfecting houses after infectious diseases: We disinfect with a formalin generator.

We have the work of disinfecting done by an experienced man, who makes a business of it.

Had no calls to disinfect houses or rooms on account of consumption.

The following cases of infectious diseases were reported: Smallpox, 1; diphtheria, 2; typhoid fever, 5; whooping cough, 3. Total number of infectious diseases, 11.

EAST SPRINGFIELD, JEFFERSON COUNTY.

Population, 200.

Person making report, Dr. H. L. Fiscus, health officer.

Fifteen dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made. Found the conditions as good as could be expected for the kind of building we have.

Have no garbage system.

Fumigate with sulphur is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

One case of typhoid fever was the only infectious disease reported.

EATON, PREBLE COUNTY.

Population, 3,200.

Person making report, J. C. McDonald, marshal and health officer.

The amount spent by the Board of Health during the year was \$23.74.

No license is required to sell milk by the board.

Inspection of the sanitary conditions of our schoolhouses was made as required.

We have no system for the collection of garbage.

Garbage is disposed of by hauling to the dump.

Method for disinfecting houses after infectious diseases: Use a formaldehyde lamp.

The attending physician does the work of disinfecting.

In case I have a call to disinfect houses or rooms on account of consumption, I call upon the attending physician to do the disinfecting.

EDGERTON, WILLIAMS COUNTY.

Population, 1,040.

Person making report, Dr. Calvin Hathaway, health officer.

I do not know the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Haul it off on a field is the disposition made of the garbage.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by myself.

Do not know how often I have been called upon to disinfect houses or rooms on account of consumption.

Generator used I purchased in Chicago. It is a good one.

Cases of infectious diseases reported: Diphtheria, 1; measles, 50; other infectious diseases, 10. Total number of infectious diseases, 61.

EDON, WILLIAMS COUNTY.

Population, 900.

Person making report, H. F. Alwood, health officer.

Do not know the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

The sanitary conditions of our schoolhouse were not inspected. Our school building has just been completed and has been occupied since the holidays. No inspection was thought necessary.

Garbage is collected in barrels and hauled away.

Disposal of garbage is made in the country on farms.

For disinfecting houses after infectious diseases our method is the formaldehyde lamp.

The attending physician does the disinfecting.

Have had no calls to disinfect houses or rooms on account of consumption.

Do not know the name of generator used.

The only infectious disease reported was one case of typhoid fever.

ELDORADO, PREBLE COUNTY.

Population, 358.

Person making report, George W. McCoy, health officer.

The amount spent by the Board of Health during the year was \$6.49.

There were no prosecutions for violations of health laws or orders of the Board of Health during the year.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made and found not to be good.

Garbage is collected and hauled away to a dumping ground.

Method for disinfecting houses after infectious diseases: The work is done by our physicians.

ELMORE, OTTAWA COUNTY.

Population, 1,025.

Person making report, Dr. R. A. Willett, health officer.

Board of Health spent \$30 during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets. All of our wells are cased with iron pipe to the limestone rock and then drilled into the rock.

A license to sell milk is not required by the board.

An inspection was made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

For the disposal of garbage we have a number of garbage collectors who make contracts with the people according to the quantity which they have to remove.

Method for disinfecting houses after infectious diseases: Close rooms tightly; hang all bed clothing and other clothing loosely about the room and use Dr. Novy's formaldehyde generator, after which keep the room closed for 12 hours.

Disinfecting is done by me personally.

I have never been called upon to disinfect houses or rooms on account of consumption.

We use Dr. Novy's generator and six ounces of formaldehyde to the 1,000 cubic feet of air space.

Cases of infectious diseases reported: Membranous croup, 1; typhoid fever, 1; measles, 1. Total number of infectious diseases, 3.

ELMWOOD PLACE, HAMILTON COUNTY.

Population (1900), 2,532.

Person making report, Dr. E. T. Busching, health officer.

Amount spent by the Board of Health was \$84.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Ashes and garbage are collected three times a week by a wagon owned and operated by the village.

The garbage is disposed of on the west bank of Mill Creek.

After exposing the contents of the room, such as clothing, dishes, books, closets, bedding, etc., to the action of the disinfecting substance, use formaldehyde (commercial 40 per cent. solution). Close all windows, doors, etc., before gas is generated, and keep closed for eight to ten hours is my method for disinfecting houses after infectious diseases.

Disinfecting is done by either myself or by the physician in charge of the case under my supervision.

The generator used is made by Max Woher & Sons, Cincinnati, O. The amount of formaldehyde used per 1,000 cubic feet of air space is five ounces.

During the year the following cases of infectious diseases were reported: Diphtheria, 1; typhoid fever, 3. Total number of infectious diseases, 4.

ELYRIA, LORAIN COUNTY.

Population, 10,000.

Person making report, Dr. G. E. French, health officer.

Board of Health spent \$724.36 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

Before giving the license the dairy is inspected.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected in barrels from cans.

Disposition of the garbage is made by taking it out on a farm.

Fumigation is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

During the year I have had eleven calls to disinfect houses or rooms on account of consumption.

We are using frigidine now, one bottle to 1,000 cubic feet of air space. When we use formaldehyde we use 10 ounces to 1,000 cubic feet.

Cases of infectious diseases reported: Diphtheria, 5; scarlet fever, 4; typhoid fever, 12. Total number of infectious diseases, 21.

FAIRPORT, LAKE COUNTY.

Population, 2,300.

Person making report, J. H. Werbeach, health officer.

Amount spent by the Board of Health during the year, \$327.80.

No one was prosecuted for violation of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection is not made of the dairy before giving the license.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Garbage is disposed of by burying it on the lake beach.

Method for disinfecting house after infectious diseases: When disinfect

a smallpox house I destroy the clothing and bedding and burn brimstone twenty-four hours, and then have some one to wash the woodwork and windows and dishes in formaldehyde solution and tear the wall paper from the walls and burn it up.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Twelve ounces of formaldehyde to a room 10 feet square is used.

Only case of infectious diseases reported was one case of smallpox.

FAIRVIEW, GUERNSEY COUNTY.

Population, 300.

Person making report, C. M. Ault, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Did not inspect the sanitary conditions of our schoolhouses.

Have never been called upon to disinfect houses or rooms on account of consumption.

FARMERSVILLE, MONTGOMERY COUNTY.

Population, 520.

Person making report, A. W. Beall, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to re-

ceive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

FAYETTE, FULTON COUNTY.

Population, 900.

Person making report, Albert L. Ford, health officer.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected and found in good condition.

We are making arrangements for the systematic collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have had one call to disinfect houses or rooms on account of consumption.

The Park-Davis generator is used; amount of formaldehyde, 10 fluid ounces to the 1,000 cubic feet.

FELICITY, CLERMONT COUNTY.

Person making report, C. E. Reese, health officer.

Board of Health expended \$26.37 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected; also vaults examined.

Have no system for the collection or disposal of garbage.

Evaporation of formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the former health officer and sometimes a physician.

Had no calls to disinfect houses or rooms on account of consumption. Do not know of any consumption.

For fumigating I use one-half ounce solidified formaldehyde in evaporator over wood spirit, using same water.

Have had eighteen calls to disinfect houses on account of consumption.

Our generators were purchased from the West Disinfecting Co. We use from eight to ten ounces of formaldehyde for each 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 20; diphtheria, 17; scarlet fever, 11; measles, 282; other infectious diseases (chicken pox), 15. Total number of infectious diseases, 335.

FINDLAY, HANCOCK COUNTY.

Population, 20,000.

Person making report, Dr. C. W. Benedict, clerk of Board of Health.

Amount spent by the Board of Health during the year was \$2,900.

For violations of health laws or orders of the Board of Health there was one prosecution, for violation of garbage ordinance, which resulted in acquittal under technical issues.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Invariably stop the practice.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

A garbage ordinance has been passed during the year and the contract let for collecting the same, and while it's operation is not entirely satisfactory, yet it is an improvement over the former times, and we hope to work it up to a better standard in the future.

Garbage is disposed of by depositing it at a dump ground and treating it with hydrated lime and then burying.

Method for disinfecting houses after infectious diseases: Formaldehyde fumigation.

The health officer or one of the sanitary officers do the work of disinfecting.

FERNBANK, HAMILTON COUNTY.

Population, 300.

Person making report, James E. Hickman, health officer.

Board of Health spent \$14.50 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouse was not made.

We have no system for the collection of garbage.

We dispose of the garbage by hauling it away for feed for hogs, and some have it taken to the dump.

Method for disinfecting houses after infectious diseases: Use generator with formaldehyde.

The work is done by J. E. Hickman.

Not at any time have I been called upon to disinfect houses or rooms on account of consumption.

The Max Woehner generator is used. Amount of formaldehyde used is three quarts for an eight room house.

Three cases of scarlet fever were the only infectious diseases reported.

FOSTORIA, SENECA COUNTY.

Population, 8,000.

Person making report, B. B. Campbell, Secretary of Board of Health.

During the year the Board of Health spent \$2,042.07.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells that we know of used to receive house drainage, or drainage from privies or water closets.

The board requires a license to sell milk.

The dairy is inspected before giving a license.

The sanitary conditions of our schoolhouses were inspected.

We have a department for the collection of garbage which is under the supervision of the Board of Health.

Disposition of the garbage is made by burning and burying.

Use formaldehyde generator is my method for disinfecting houses after infectious diseases.

Disinfecting is done by the health officer.

To disinfect houses or rooms on account of consumption I have twelve to fifteen calls.

Dr. Novy's formaldehyde generator is used. Amount of formaldehyde, 16 ounces to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 4; membranous croup, 1; scarlet fever, 6; typhoid fever, 18; measles, 52. Total number of infectious diseases, 81.

FREMONT, SANDUSKY COUNTY.

Population, 8,500.

Person making report, Dr. O. C. Vermilya, health officer.

Board of Health spent \$530 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Sanitary conditions of our schoolhouses were inspected.

Garbage is collected by private individuals and is disposed of outside the city limits, largely by plowing under.

Method for disinfecting houses after infectious diseases: Formaldehyde gas. We use the 40 per cent. solution.

In most cases the sanitary officer does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is about one pint of the 40 per cent. solution.

Cases of infectious diseases reported: Typhoid fever, 22; measles, 15; other infectious diseases (chicken pox), 10. Total number of infectious diseases, 47.

FRANKFORT, ROSS COUNTY.

Population, 750.

Person making report, John A. Davis, health officer.

Nothing was spent by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

Disposition is made by hauling to creek.

The work of disinfecting is done by citizens.

FRANKLIN, WARREN COUNTY.

Population, 2,724.

Person making report, John B. Miller, health officer.

Amount spent by the Board of Health during the year was \$66.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected as required.

Have no system for the collection of garbage.

Garbage is gathered and disposed of by local parties.

Fumigation is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Generator used is Dr. George Leinger's. Do not know amount used.

During the year the following cases of infectious diseases were reported: Scarlet fever, 1; typhoid fever, 5; whooping cough, 3. Total number of infectious diseases, 9.

FREDERICKTOWN, KNOX COUNTY.

Population, 1,000.

Person making report, Dr. Ernest V. Ackerman, Clerk.

During the year the Board of Health spent \$10 for clerk's salary.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

No inspection was made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Each family disposes of its own garbage.

Have had no disinfecting to do during the past year.

When disinfecting is required it is done by the attending physician in nearly all cases.

Four cases of measles are the only infectious diseases reported.

FRAZEYSBURG, MUSKINGUM COUNTY.

Population, 730.

Person making report, C. L. Butler, health officer.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

I have not been called upon to disinfect any houses after infectious diseases.

To disinfect houses or rooms on account of consumption I have had no calls.

GALION, CRAWFORD COUNTY.

Population, 7,282.

Person making report, Dr. H. H. Hartmann, health officer.

Amount spent by the Board of Health during the year was \$916.23.

For violations of health laws or order of the Board of Health there were no prosecutions.

Abandoned wells not used to receive

house drainage, or drainage from privies or water closets.

The board requires a license to sell milk.

Inspection is made of the dairy before giving the license.

Sanitary conditions of our school-houses were inspected.

No system is employed for the collection of garbage.

Formaldehyde generator is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the sanitary officer under my supervision.

Have been called upon twice to disinfect houses or rooms on account of consumption.

Copper basin over a Prismus lamp No. 1 is used, and from eight to twelve ounces of formaldehyde, according to the disease and condition of house.

Cases of infectious diseases reported: Smallpox, 7; scarlet fever, 34; typhoid fever, 15; measles, 210; other infectious diseases, 21. Total number of infectious diseases, 287.

GALLIPOLIS, GALLIA COUNTY.

Population, 5,432.

Person making report, Charles B. Robinson, health officer.

During the year the Board of Health spent \$414.93, of which amount \$300 was for salary.

There were no prosecutions for violations of health laws or orders of the Board of Health.

The board does not require a license to sell milk.

Our schoolhouses were inspected and the sanitary conditions found to be fair.

No system is employed for the collection of garbage.

Haul it away on dump is disposition made of the garbage.

Temperature of rooms not below 60 degrees Fahrenheit dampened and

kept tightly closed for 10 or 12 hours is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by myself or a trained nurse under my direction.

Have had no calls to disinfect houses or rooms on account of consumption, except where death has been reported.

Dr. George Leininger's generator No. 3 is used, and two ounces of formaldehyde to 1,000 cubic feet of air space.

Following cases of infectious diseases were reported during the year: Smallpox, 1; diphtheria, 3; membranous croup, 2; scarlet fever, 6; typhoid fever, 7; measles, 6. Total number of infectious diseases, 25.

GAMBIER, KNOX COUNTY.

Population, 700.

Person making report, Dr. A. D. Welker, health officer.

Nothing was spent by the Board of Health during the year.

Had no occasion to prosecute for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no dairies.

We have not inspected the sanitary conditions of our schoolhouse. We are erecting a new brick schoolhouse and expect to enter it this spring.

Have no system for the collection of garbage.

The garbage is carted away and deposited on the river bank.

My method for disinfecting houses after infectious diseases is formaldehyde vapor.

Disinfecting is done by me personally.

Have never been called upon to dis-

infect houses or rooms on account of consumption.

Generator used is of the Park, Davis & Co. make. Use one pint for the 1,000 cubic feet of air space.

There were no cases of infectious diseases reported during the year.

GANN, KNOX COUNTY.

Population, 400.

Person making report, J. T. DeWitt, Mayor.

There was nothing spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets. Wells are all driven or drilled.

Neighbors sell milk and no license is required by the board.

The sanitary conditions of our schoolhouses were inspected and found to be in a good, healthy condition.

All garbage is collected and hauled outside of corporation.

The garbage is disposed of by depositing in some out of the way place.

We have no method for disinfecting houses after infectious diseases and have had no calls for disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

No cases of infectious diseases were reported.

GARRETTSVILLE, PORTAGE COUNTY.

Population, 1,200.

Person making report, Dr. G. R. French, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for vio-

lations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets that I know of.

Residents have dry wells fitted with stone and gravel, which are used to receive waste water from houses.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were not inspected.

We have no system for the collection of garbage.

At present we have no way of disposing of the garbage.

For disinfecting houses after infectious diseases I have followed the method recommended by the Ohio State Board of Health.

Disinfecting is done by me personally.

Never had any calls to disinfect houses or rooms on account of consumption.

Dr. Novy's generator is used and 10 ounces of 40 per cent. solution.

One case of measles was the only infectious diseases reported.

GENEVA, ASHTABULA COUNTY.

Population, 2,350.

Person making report, Dr. F. C. Smith, health officer.

Amount spent by the Board of Health during the year was \$369.96.

There were no prosecutions for violations of health laws or orders of the Board of Health.

To receive house drainage, or drainage from privies or water closets there are no abandoned wells used.

At one time a license to sell milk was required, but have discontinued the practice.

The sanitary conditions of our schoolhouses were inspected once.

No system is employed for the collection of garbage.

Disposition of the garbage is made by hauling it out of town.

Method for disinfecting houses after infectious diseases: Burn formaldehyde.

The work of disinfecting is done by me personally.

Have had two or three calls to disinfect houses or rooms on account of consumption.

Shering and Glatz's small formalin lamps are used. We use 20 pastils to 1,000 cubic feet of air space.

The following cases of infectious diseases were reported during the year: Diphtheria, 2; scarlet fever, 33; typhoid fever, 1; measles, 116. Total number of infectious diseases, 152.

GERMANTOWN, MONTGOMERY COUNTY.

Population, 2,000.

Person making report, William Schaeffer, health officer.

Board of Health spent \$40 during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected by the citizens in barrels. Some of it is put on piles in the streets and alleys.

A dumping ground outside the corporation is provided where garbage is disposed of.

Method for disinfecting houses after infectious diseases: Formaldehyde is used for fumigation.

Disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

The copper retort formaldehyde gas generator manufactured by Max Wecher & Sons, Cincinnati, Ohio, is used. Amount of formaldehyde used is one-third of a pound to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 1; measles, 1; other infectious diseases (chicken pox), 1. Total number of infectious diseases, 4.

GEYER, AUGLAIZE COUNTY.

Population, 150.

Person making report, James Snyder, health officer.

As near as I can estimate the Board of Health spent \$270 during the year. We have no exact account.

Smoking the rooms with sulphur is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by a physician.

Infectious diseases reported during the year were 12 cases of smallpox.

GIBSONBURG, SANDUSKY COUNTY.

Population, 2,000.

Person making report, W. O. Dipman, health officer.

The Board of Health spent \$76 during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected and hauled outside the corporation.

Disposition of the garbage is made by burying it.

Our method for disinfecting houses after infectious diseases is to use formaldehyde.

The work of disinfecting is done principally by me.

Was called upon twice to disinfect houses or rooms on account of consumption.

Dr. Leininger's generator is used, amount of formaldehyde, two ounces.

The only cases of infectious diseases reported were 34 cases of typhoid fever.

GIRARD, TRUMBULL COUNTY.

Population, 3,500.

Person making report, Dr. F. C. Hunt, health officer.

Amount spent by the Board of Health, \$275.25.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection was not made of the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

The garbage is disposed of on a vacant lot one mile from town.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Generator made by Park, Davis & Co. is used. The amount is 10 ounces.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 2; typhoid fever, 20; measles, 12; other infectious diseases, 9. Total number of infectious diseases, 45.

GLENDAL, HAMILTON COUNTY.

Population, 1,545.

Person making report, Clifford Allen, health officer.

Board of Health spent \$150 during the year.

There were no prosecution for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

The sanitary condition of our schoolhouses have been inspected.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Fumigate rooms with formaldehyde gas and close all cracks and openings.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

We use a Max Wocher & Sons generator and about six ounces of formaldehyde to 1,000 cubic feet of air space.

Fifteen cases of scarlet fever were the only cases of infectious diseases reported.

GLENMONT, HOLMES COUNTY.

Population, 200.

Person making report, George L. Robinson, Mayor.

Board of Health spent \$350 during the year.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Close all cracks secure and fumigate with formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Novy generator is used. I use eight ounces of formaldehyde to 1,000 cubic feet of air space.

I suggest that every house where there has been a death from consumption should be compelled to have the house fumigated.

Cases of infectious diseases reported: Smallpox, 25; scarlet fever, 3; whooping cough, 14. Total number of infectious diseases, 42.

GLENVILLE, CUYAHOGA COUNTY.

Population, estimated 3,800.

Person making report, B. F. Carpenter, health officer.

About \$27 was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Contract let to collect garbage from house to house twice a week.

The company that collects the garbage takes it to a disposal plant they have and burn it I suppose.

Gas generated from solidified formaldehyde, using Dr. George Leininger's formaldehyde generator and take from four and one-half to five hours' time for the use of the generator is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not had any calls this year to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used and about one ounce of formal-

dehyde per 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 12; scarlet fever, 4; measles, 34; other infectious diseases, 1. Total number of infectious diseases, 51.

GLOUSTER, ATHENS COUNTY.

Person making report, Dr. H. Gibson, health officer.

Following is the amount expended by the Board of Health during the year: Health officer, \$60; sanitary officer, \$1.20. Total, \$61.20.

No one was prosecuted for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have not as yet inspected the sanitary conditions of our schoolhouses.

Garbage is collected and hauled to a dumping ground where it is disposed of by burning.

Close all doors, windows and cracks and use formaldehyde for four hours, then ventilate is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Had no calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and two ounces of formaldehyde to each 1,000 cubic feet of air space.

I would suggest that the health officer's salary be made at least \$10 a month, so he could afford to look after the sanitary conditions of his town or village more properly.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1;

membranous croup, 3; scarlet fever, 15; typhoid fever, 20; whooping cough, 10; measles, 30. Total number of infectious diseases, 80.

GORDON, DARKE COUNTY.

Population, 300.

Person making report, Dr. H. Z. Silver, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

There is no schoolhouse in town.

We have no system for the collection of garbage.

Disposition is made by hauling the garbage away.

Method for disinfecting houses after infectious diseases: Sulphur torches.

The work of disinfecting is done by me personally.

Never had any calls to disinfect houses or rooms on account of consumption.

One case of typhoid fever was the only infectious disease reported.

GRAFTON, LORAIN COUNTY.

Population, 12,000.

Person making report, John Cahill, health officer.

Sixty dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

No system employed for the collection of garbage.

Garbage is disposed of by individuals.

Formaldehyde and sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Do not know the name of the generator used.

During the year the following cases of infectious diseases were reported: Diphtheria, 2; membranous croup, 1; typhoid fever, 9; whooping cough, 15; measles, 100; other infectious diseases, 100. Total number of infectious diseases, 227

GRAND RAPIDS, WOOD COUNTY.

Population, 600.

Person making report, Jas. H. Williams, health officer.

The amount spent by the Board of Health during the year was \$25.40; also allowed the Flood Relief Committee \$90.69 for cleaning wells, cisterns, streets and alleys, disposing of dead animals, etc.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Formaldehyde generator.

The work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

The Moffat formaldehyde generator is used.

GREENSPRING, SENECA COUNTY.

Population, 900.

Person making report, Dr. R. D. Reynolds, health officer.

Board of Health spent \$25 during the year,

There were no prosecutions for violations of health laws or orders of the Board of Health.

Not as far as known are abandoned well used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our school-houses were inspected.

We have no system for the collection of garbage.

The garbage is hauled away by farmers and either buried or burned.

Our method for disinfecting houses after infectious diseases is vaporizing formalin or formaldehyde, bi-chloride wash and burning sulphur

The work of disinfecting is done by the sanitary officer.

Have never been called on to disinfect houses or rooms on account of consumption.

About eight ounces of formalin to 1,000 cubic feet of air space is placed on an oil stove in an open dish.

One case of scarlet fever was the only infectious disease reported during the year.

GREENVILLE, DARKE COUNTY.

Population, 6,000.

Person making report, Dr. John D. Kerlin, health officer.

During the year the Board of Health spent \$1,062.27, which includes salary for health officer, inspectors of sanitary plumbing, etc.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used receiving house drainage, or drainage from privies or water closets that I know of.

Stop the practice as soon as we find them in use.

Board requires no license to sell milk.

Dairies are inspected once a year.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected and hauled in tank to the country.

Some of the garbage is disposed of by feeding to hogs, the remainder is plowed under.

Method for disinfecting houses after infectious diseases: Formaldehyde and use Wells' generator.

Sanitary Inspector Joel S. Williams does the work of disinfecting.

Have been called upon twice to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is four to eight ounces.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 2; typhoid fever, 2; measles, (epidemic last spring; we quit quarantining; probably 100 cases). Total number of infectious diseases (measles excepted), 6.

GREENWICH, HURON COUNTY.

Population, 1,000.

Person making report, W. O. Holden, health officer.

The Board of Health spent nothing during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Each person is compelled to take care of his own garbage.

Number of cases of infectious diseases reported were: Diphtheria, 2; typhoid fever, 3. Total number of infectious diseases, 5.

GROVE CITY, FRANKLIN COUNTY.

Population, 800.

Person making report, M. L. Harsh, health officer.

Thirty-six dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspected the sanitary conditions of our schoolhouses and found them in fairly good condition.

No regular system is employed for the collection of garbage.

Disposition of the garbage is made by carting it away in wagons.

Have no method for disinfecting houses after infectious diseases as I have had no occasion to disinfect any.

So far the work of disinfecting has been done by the family, if at all.

Had no calls to disinfect houses or rooms on account of consumption.

Six cases of whooping cough and four of measles were the total number of cases of infectious diseases reported.

GROVEPORT, FRANKLIN COUNTY.

Population, 600.

Person making report, Dr. C. R. Clement, health officer.

About \$20 was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Our generator is now at Canal Winchester, O., and I cannot recall the name.

Five cases of typhoid fever were the only cases of infectious diseases reported.

HAMILTON, BUTLER COUNTY.

Population, 23,914.

Person making report, Dr. Mark Millikin, health officer.

Board of Health spent \$2,500 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Have found but one instance where an abandoned well was used to receive house drainage, or drainage from privies or water closets.

House drainage: Analysis of a neighboring well showed the water to contain alkaline (phenolphthaleine test) but free from colon bacillus. I advised

the owner to discontinue use of water and to order the practice stopped.

A license is required to sell milk by the board.

The dairy is inspected before giving the license.

Am now engaged in inspecting the sanitary conditions of our school-houses.

Collection and disposal of garbage is contracted for. The city funds are insufficient to allow the running of the crematory. Crematory is fired twice a week for the burning of butchers' offal.

Method for disinfecting houses after infectious diseases: Generally use the "sheet" method. Sometimes I use formalin on a kitchen stove; sometimes I use a preparation of formalin with some chemicals, which causes a free, active generation of formalin gas and sometimes I use solid formalin.

The work of disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have been called once, but the tendency is growing.

I always use more than the prescribed amount of one ounce of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 7; diphtheria, 11; scarlet fever, 47; typhoid fever, 29; measles, 100; other infectious diseases, 2. Total number of infectious diseases, 196.

HAMLER, HENRY COUNTY.

Population, 600.

Person making report, H. L. Willard, Clerk Board of Health.

The amount spent by the Board of Health during the year was \$23.13.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to re-

ceive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Disposition of the garbage is made by burning and burying.

Free use of carbolic acid and burn sulphur; five pounds of sulphur to each room is the method for disinfecting houses after infectious diseases.

Health Officer Wm. Barhite, Sr., does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 7; whooping cough, 3; measles, 12; other infectious diseases (dysentery), 18. Total number of infectious diseases, 42.

HANGING ROCK, LAWRENCE COUNTY.

Population, 600.

Person making report, Joseph Kin-kaid, health officer.

During the year the Board of Health spent \$93.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

During the year the following cases of infectious diseases were reported: Diphtheria, 2; typhoid fever, 3. Total number of infectious diseases, 5.

HANOVERTON, COLUMBIANA COUNTY.

Population, 400.

Person making report, H. C. Dutton, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

The board does not require a license to sell milk.

We have no system for the collection of garbage.

The Board of Health spent nothing during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There was one abandoned well used to receive house drainage, or drainage from privies or water closets at Vincent. It has been abolished.

Board of Health and health officer have taken action to stop the practice of using abandoned wells.

License to sell milk is not required by the board.

Dairy is not inspected before giving the license.

No system is employed for the collection of garbage. There are people in town who gather the garbage and dispose of it by feeding it to their pigs and cows. There is no surplus garbage in the village.

Method for disinfecting houses after infectious diseases: I use a machine with coal oil burner and generated by alcohol, put it through the keyhole of the door with a brass point and a rubber tube. Formaldehyde.

Health Officer Abe Loos does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Novy formaldehyde generator is used. Amount of formaldehyde, one and one-half pints in thirty minutes.

I suggest doing everything to keep the village in a sanitary condition.

One case of typhoid fever was the only case of infectious diseases reported.

HARRISBURG, FRANKLIN COUNTY.

Population, 254.

Person making report, J. H. Fullen, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

An inspection was made of the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Garbage is fed to hogs.

Have no method for disinfecting houses after infectious diseases. Have had no infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption. Have had no consumption.

HARROD, ALLEN COUNTY.

Population, 400.

Person making report, John Blair, Sr., health officer.

Amount spent by the Board of Health during the year was \$6.75.

For violations of health laws or orders of the Board of Health there were no prosecutions.

HARRISON, HAMILTON COUNTY.

Population, 2,200.

Person making report, Abe Loos, health officer and marshal.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Garbage is collected with wagon and taken to places outside the corporation and disposed of by burning and burying.

I use sulphur as a method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

One case of typhoid fever is the only infectious disease reported.

HARTWELL, HAMILTON COUNTY.

Population, 2,500.

Person making report, H. G. Gould, health officer.

About \$200 was the amount spent by the Board of Health during the year.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Several persons collect the garbage.

Dump it outside the city limits is the disposition made of the garbage.

Formaldehyde and sulphur is my method for disinfecting houses after infectious diseases. In one case of diphtheria I used formaldehyde; in another I used sulphur.

One case of disinfecting was done by the attending physician and one by myself.

Have had no calls to disinfect houses or rooms on account of consumption.

Total number of infectious diseases reported were two cases of diphtheria.

HASKINS, WOOD COUNTY.

Population, 369.

Person making report, Dr. H. J. Johnston, health officer.

During the year the Board of Health spent \$175.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Disposition of the garbage is made by burning and burying.

Formaldehyde and sulphur is my method for disinfecting houses after infectious diseases.

The sanitary officer does the disinfecting.

I have been called upon once to disinfect houses or rooms on account of consumption.

Do not know the name of generator used. The township trustees own the apparatus.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1; scarlet fever, 3; typhoid fever, 1; other infectious diseases, 3. Total number of infectious diseases, 9.

HEBRON, LICKING COUNTY.

Population, 500.

Person making report, Dr. O. M. Kramer, health officer.

One hundred dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected as required.

We have no system for the collection of garbage.

Garbage is disposed of by farmers in the country.

Disinfect by use of formaldehyde. Cleanse and wash thoroughly in antiseptic solution is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Lentz's formaldehyde gas generator is used, and eight ounces of solution for every 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 10; whooping cough, 2. Total number of infectious diseases, 12.

HICKSVILLE, DEFIANCE COUNTY.

Population, 3,000.

Person making report, Amos Farlow, health officer.

About \$75 were expended by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected and found to be in good order.

We have a garbage officer who collects all garbage of the town. Contents of privy vaults is collected at night in air-tight barrels.

Contents of vaults and decomposed garbage are taken to a farm outside of

the corporation and spread on the ground. Dry refuse is used to fill up washouts along ravines.

Our method for disinfecting houses after infectious diseases is formaldehyde, solid and liquid.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

We purchased the best generator we could get. I do not know the name, as it is not in my possession. I follow instructions as to the amount of formaldehyde to use.

One case of membranous croup and two cases of typhoid fever were the only cases of infectious diseases reported.

HIGGINSPOET, BROWN COUNTY.

Population, 600.

Person making report, F. M. Cahill, health officer.

Nothing was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

For house drainage, or drainage from privies or water closets abandoned wells are not used.

Board does not require a license to sell milk.

No inspection is made of the dairy before giving the license.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected in barrels and disposed of on a dump.

Use a solution of carbolic acid is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done personally by me.

To disinfect houses or rooms on account of consumption I have been called upon twice.

No cases of infectious diseases were reported.

HILLIARDS, FRANKLIN COUNTY.

Population, 400.

Person making report, Dr. George W. Deem, health officer.

During the year the Board of Health expended nothing.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license is not required to sell milk by the board.

We have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Burn sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Had no calls to disinfect houses or rooms on account of consumption.

HILLSBORO, HIGHLAND COUNTY.

Population, 4,535.

Person making report, Dr. J. D. McBride, health officer.

About \$225 were spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

The sanitary conditions of our schoolhouses were not inspected.

For the collection of garbage we have no system.

Each person disposes of his own garbage.

My method for disinfecting houses after infectious diseases is to burn formaldehyde.

Disinfecting in some cases is done

personally by me; in others it is done by the sanitary officer.

I have never been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used and not less than one ounce of formaldehyde.

Total number of infectious diseases were 17, 10 scarlet fever and 7 typhoid fever.

HOLLANSBURG, DARKE COUNTY.

Population, 475.

Person making report, Dr. A. W. Meek, health officer.

Ten dollars were spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no regular dairy.

An inspection was made of the sanitary conditions of our schoolhouse and found to be in good sanitary condition.

We have adopted no system for the collection of garbage.

Garbage is disposed of on low lands in the country. It is hauled by independent persons.

Method for disinfecting houses after infectious diseases: First I have all the bed clothing saturated with a solution of bi-chloride of mercury, then fumigate the room with sulphur. I have had splendid success by this method.

The work is personally done by me.

Have never been called upon to disinfect houses or rooms on account of consumption.

One case of typhoid fever is the only case of infectious diseases reported.

HOLMESVILLE, HOLMES COUNTY.

Population, 302.

Person making report, A. M. Jenkins, Clerk of the Board of Health.

Nothing was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Have had no houses to disinfect after infectious diseases.

Have never been called upon to disinfect houses or rooms on account of consumption.

HOPEDALE, HARRISON COUNTY.

Population, 500.

Person making report, Dr. W. R. Allison, health officer.

Amount spent by the Board of Health during the year was \$100.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

No disposition is made of the garbage.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have had two calls to disinfect houses or rooms on account of consumption.

The Novy generator is used.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 4; membranous croup, 1; scarlet fever, 4; typhoid fever, 10; whooping cough, 4; measles, 10; other infectious diseases 14. Total number of infectious diseases, 49.

HOYTVILLE, WOOD COUNTY.

Population, 400.

Person making report, Solomon Brentlinger, health officer.

The Board of Health spent nothing during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected as required.

No system is employed for the collection of garbage.

Burn all clothes, carpets and rugs; boil bed clothes and fumigate with burned sulphur is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had one call to disinfect houses or rooms on account of consumption.

Do not use generator or formaldehyde.

Two cases of diphtheria were the only cases of infectious diseases reported.

HUBBARD, TRUMBULL COUNTY.

Population, 1,230.

Person making report, Dr. W. S. Bond, health officer.

About \$50 were expended by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

For disinfecting houses after infectious diseases we have a competent man from the Youngstown Health Department to do the work.

Have had no call to disinfect houses or rooms on account of consumption.

Do not know the name of generator used.

Method for disinfecting houses after infectious diseases: We have purchased a large formaldehyde generator for that purpose.

The work of disinfecting is done either by me or the attending physician.

In the past year have had no calls for disinfecting houses or rooms on account of consumption.

We use the full amount of formaldehyde as given in the accompanying directions with the instrument.

Would suggest that the salary of the health officer be increased so that he may devote more time in the interest of the community which he serves.

HURON, ERIE COUNTY.

Population, 1,800.

Person making report, S. N. Lennon, health officer.

The Board of Health spent \$300 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk by the board.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system other than every person disposes of his own garbage.

For the disposition of the garbage the corporation furnishes a place and requires everybody to deposit all garbage on the place so provided.

My method for disinfecting houses after infectious diseases is to seal all rooms as perfectly air tight as possible, expose all bedding, books, papers and clothing to formaldehyde gas.

The work of disinfecting is done by me personally.

HUNTSVILLE, LOGAN COUNTY.

Population, 500.

Person making report, Dr. G. W. Jones, health officer.

Fifteen dollars were spent during the year by the Board of Health.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

The health officer and street commissioner look after the disposal of garbage as often as is needed.

Have had three calls to disinfect houses or rooms on account of consumption.

Generator used is of the Levie-Lillie make. I have two large sized lamps. The lamps use one-fourth gallon of wood alcohol each hour and burn one hour for each 1,000 cubic feet of air space.

All local boards have more or less trouble with the council in having bills allowed. The law should be so that the council could not interfere with the Board of Health. The Board of Health should be as free from the control of the council as the Board of Education is. The Mayor should not be chairman of the board. All bills, when certified by the Secretary of the Board of Health, should be a draft upon the treasury and paid out of any money not otherwise provided for.

Cases of infectious diseases reported: Diphtheria, 5; membranous croup, 1; typhoid fever, 15; measles, 15. Total number of infectious diseases, 36.

IRONTON, LAWRENCE COUNTY.

Person making report, Dr. E. E. Wells, health officer.

For violations of health laws or orders of the Board of Health, about three prosecutions were had—for interfering with quarantine rules.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were not inspected.

Garbage is collected in carts and disposed of by hauling to dumping ground.

Method for disinfecting houses after infectious diseases: Sulphur and formaldehyde with room as air-tight as possible. We use one-half ounce of

the latter, solid form, in generator in rooms 15x18 on average, but depend on sulphur for smallpox fumigating, using 10 to 15 pounds for an ordinary sized house.

The sanitary officer does the work of disinfecting under my supervision.

Have probably had three or four calls to disinfect houses or rooms on account of consumption.

Cannot find record of any infectious diseases previous to May 1, 1904, of the year 1904.

ITHACA, DARKE COUNTY.

Population, 200.

Person making report, Dr. J. C. Hamilton, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made as required.

We have no system for the collection of garbage.

The garbage is disposed of in the country.

For disinfecting houses after infectious diseases I use different methods.

Disinfecting is done by me personally.

Have been called upon to disinfect four houses on account of consumption.

JACKSON, JACKSON COUNTY.

Population, 6,800.

Person making report, G. W. Finney, Clerk of Board of Health.

About \$400 was the amount spent by the Board of Health.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Formaldehyde and liquid is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the health officer.

Had three calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger Chemical Co.'s generator is used. Amount of formaldehyde, three ounces.

During the year the following cases, of infectious diseases were reported: Membranous croup, 1; scarlet fever, 1; typhoid fever, 1; other infectious diseases, 1. Total number of infectious diseases, 4.

JACKSON CENTER, SHELBY COUNTY.

Population, 800.

Person making report, Dr. A. V. Derr, health officer.

During the year the Board of Health spent \$45.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

We have no dairy.

Our schoolhouse is new, completed in 1903. I fumigated all the rooms the day before school convened.

No system is employed for the collection of garbage.

The property holders remove all garbage from their property. The streets and alleys are kept clean by the city.

Method for disinfecting houses after infectious diseases: Fumigate with formaldehyde, 40 per cent. solution.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The generator used is made by Park, Davis & Co. I always use the generator in each room one hour. In rooms where I fumigate for smallpox I go back in the afternoon and use the generator another hour.

Total number of infectious diseases reported were 21: Smallpox, 5; scarlet fever, 16.

JACKSONVILLE, ATHENS COUNTY.

Population, 1,150.

Person making report, Dr. C. Von Scheele, health officer.

Amount spent by the Board of Health during the year was \$150.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Formaldehyde fumigation is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger's fumigator is

used and one-half ounce of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 8; diphtheria, 5; membranous croup, 2; scarlet fever, 14; typhoid fever, 5; whooping cough, 14; measles, 22; other infectious diseases, 30. Total number of infectious diseases, 100.

JAMESTOWN, GREENE COUNTY.

Population, 1,205.

Person making report, W. F. McMillen, health officer.

Board of Health spent \$50 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Each property owner disposes of his own garbage.

Use formaldehyde as a method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

I do not know the name of the generator used. I use the amount of formaldehyde recommended by the State Board of Health.

The boards of health of the neighboring villages and townships do not seem to give much attention to the matter of burial and removal permits, at least we have some trouble with

them complying with the law as we understand it.

Three cases of typhoid fever were the only cases of infectious diseases reported.

JEFFERSONVILLE, FAYETTE COUNTY.

Population, 900.

W. S. Reid, health officer.

No report made.

JENERA, HANCOCK COUNTY.

Population, 276.

Person making report, Charles H. Heldman, health officer.

Eight dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

No system is employed for the collection of garbage.

Disposal of the garbage is made by giving notice to remove and bury.

Method for disinfecting houses after infectious diseases: Generate formaldehyde.

Disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. F. G. Novy's generator is used. Amount of formaldehyde used, five ounces, 40 per cent. solution, to 1,000 cubic feet of air space.

JUNCTION CITY, PERRY COUNTY.

Population, 600.

Person making report, I. A. Moody, health officer.

Including salaries of officers about \$100 was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected and the rooms were found to be in a satisfactory sanitary condition at each inspection.

Each family is required to collect garbage in barrels during the summer months and have it hauled to dumping grounds provided by the Board of Health and Council at their own expense.

The garbage is disposed of on a dumping ground outside of corporate limits.

Formaddehyde and sulphur, either or both, in some instances, especially after smallpox, diphtheria or scarlet fever is my method for disinfecting houses or rooms after infectious diseases.

The work of disinfecting is done under my personal supervision.

For disinfecting houses or rooms on account of consumption we have not established any rule yet, but intend to this year.

We use a large generator. I cannot give the name, but fumigate by measurements of formula and strictly in accordance with instructions accompanying generator.

I suggest there should be a perfect organization of good citizens composing the board, a reliable and fearless health officer and meetings held once a month at least and other meetings subject to the call of the Board of Health or health officer. Always keep

on the alert for contagious diseases and unsanitary conditions and never allow interest in these matters to lag or not receive immediate attention when they occur. We have an efficient Board of Health of which we are justly proud.

Cases of infectious diseases reported: Typhoid fever, 1; whooping cough, 30. Total number of infectious diseases, 31.

KENTON, HARDIN COUNTY.

Population, 8,000.

Person making report, J. W. Hammond, health officer.

Amount spent by the Board of Health during the year was \$86.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected by the Board of Health.

Garbage is collected in barrels and boxes and is hauled away with wagons.

The garbage is disposed of on a farm outside of corporation.

We use the Moffatt formaldehyde generator for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption, but have often loaned lamp.

Use the Moffatt formaldehyde generator and one and one-half pints to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 21; diphtheria, 6; membranous croup, 10; scarlet fever, 2; typhoid fever, 20; whooping cough, 12; measles, 14; other infectious diseases (chicken pox), 14. Total number of infectious diseases, 99.

KALIDA, PUTNAM COUNTY.

Population, 800.

Person making report, W. W. Dunavin, health officer.

Board of Health spent \$36 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have no dairy.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected and disposed of by burying it.

No infectious diseases here during the last year.

Had no calls to disinfect houses or rooms on account of consumption.

KENT, PORTAGE COUNTY.

Population, 4,500.

Person making report, B. C. Newberry, health officer.

Ten dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

An inspection of the dairy is made before giving the license.

Sanitary conditions of our schoolhouses were inspected.

Water-tight tanks are used for the collection of garbage.

Disposition of the garbage is made in the country by burying it.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Health Officer B. C. Newberry does the work of disinfecting.

Generator used is Dr. George Leininger's.

Five cases of measles were the only infectious diseases reported.

KOSSUTH, AUGLAIZE COUNTY.

Population, 150.

Person making report, Thos. J. Barnett, health officer.

During the year the Board of Health spent \$64.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made and found in good condition.

For the collection of garbage no system is required.

Burn or haul it away is the disposition made of the garbage.

Method for disinfecting houses after infectious diseases: Use formaldehyde and brimstone.

Disinfecting is done by myself and Dr. E. McCormick.

Had no calls to disinfect houses or rooms on account of consumption.

We use Dr. George Leininger's generator.

LAKESIDE, OTTAWA COUNTY.

Person making report, Dr. O. L. Mapes.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

During the summer months, July, August and September the garbage is gathered each day and hauled away and buried. This is during the "association" meetings.

LAKEWOOD, CUYAHOGA COUNTY.

Population, 5,000.

Person making report, Dr. Alfred W. Anderson, health officer.

About \$3,500 was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, no cases came to prosecution. All were settled by first giving warnings.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board requires a license to sell milk.

Do not inspect the dairy before giving the license, but test the milk as it is sold.

Garbage is collected by contract with the Newburgh Reduction Company, who removes garbage from each house having garbage cans at least twice during the week on regular days.

The Newburgh Reduction Company remove the garbage to Willow, O., where it is disposed of by rendering same.

My method for disinfecting houses after infectious diseases is to use formaldehyde generator. Then allow no communication in public places for two weeks thereafter.

The sanitary officer does the disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Novy generator made by Park, Davis & Co., Detroit, Mich., is used, and use generator 30 minutes for each 1,000 cubic feet of air space.

Would suggest dropping any member who misses more than two meetings in succession without a good rea-

son, as a quorum is sometimes wanting when very important business is to be transacted; a new member appointed in his place and a salary to the members on account of time given.

Following cases of infectious diseases were reported: Diphtheria, 12; membranous croup, 1; scarlet fever, 5; typhoid fever, 3; measles, 48. Total number of infectious diseases, 69.

LANCASTER, FAIRFIELD COUNTY.

Population, 12,500.

Person making report, Dr. George W. O'Grady, health officer.

Amount spent by the Board of Health during the year was \$420.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are used and have been used for many years.

As our sewer system is very much at fault, we have been unable to take any action to stop the practice.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made, and every room in all our school buildings is disinfected at least once a week with formaldehyde gas.

No system is employed for the collection of garbage. A few garbage collectors go around and gather it from a few places and that is all.

Some of the garbage is disposed of by burning; some of it by burying. The rest is thrown out and nothing done with it. When this is the case, and it is brought to the notice of the Health Department, it is cleaned up.

Method for disinfecting houses after infectious diseases: We use the Dr. George Leininger Chemical Co.'s generator and solidified formaldehyde, one ounce to 1,000 cubic feet.

The health officer does the work of disinfecting.

Have not had any calls to disinfect houses on account of consumption.

We need a better sewer system, a system for the collection of garbage, inspection of milk and license all milk dealers and a sanitary officer.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 18; membranous croup, 8; scarlet fever, 11; typhoid fever, about 15; whooping cough, over 150; measles, over 200. Total number of infectious diseases, 405.

LARUE, MARION COUNTY.

Population 1,000.

Person making report, J. Gillespie, health officer.

Amount spent by the Board of Health during the year was \$327.18.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Garbage is disposed of by a drayman, who carts it off of the streets and property.

Close room air tight, hang clothes loose on lines and place chairs so that the gas can get around is my method for disinfecting houses after infectious diseases.

Former health officer and G. A. L. Markwith, undertaker, do the work of disinfecting.

Have had no calls to disinfect houses or rooms on account of consumption.

The Lentz generator is used and 16 ounces of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported:

Smallpox, 5; scarlet fever, 5; typhoid fever, 3. Total number of infectious diseases, 13.

LATTY, PAULDING COUNTY.

Population, 400.

Person making report, George W. Davis, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Formaldehyde by spraying is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

LAURA, MIAMI COUNTY.

Population, 400.

Person making report, Dr. S. P. Neff, health officer.

During the year the Board of Health spent \$16.86.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Every person is compelled to dispose of his own garbage.

Method for disinfecting houses after infectious diseases: Use Dr. Leininger's formaldehyde generator and the solidified formaldehyde.

Disinfecting is done by me personally.

Have had no calls to disinfect houses on account of consumption.

Generator used is Dr. Leininger's. Amount of formaldehyde used is one-half to one ounce of the solidified.

LAURELVILLE, HOCKING COUNTY.

Population, 500.

Person making report, Dr. W. D. Cain, health officer.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made and thoroughly fumigated.

No system is employed for the collection of garbage.

Disposition of the garbage is made by individuals under instruction of the health officer.

Formaldehyde and brimstone is my method for disinfecting houses after infectious diseases.

Have done the work of disinfecting myself, except in one case of smallpox.

Have never been called upon to disinfect houses or rooms on account of consumption.

Formaldehyde generator used in accordance with instructions of the State Board of Health.

I fumigate school buildings personally.

I think it would be incumbent on all owners of properties on which are located privy vaults to thoroughly

fumigate same in the months of July and October, as that would cover the time, in general, of our worst contagious or infectious diseases.

Would also suggest that all boards of health prepare and properly keep in a central (in townships) or convenient location a pest house, suitable for the needs of the township.

Cases of infectious diseases reported: Smallpox, 3; whooping cough, 8. Total number of infectious diseases, 11.

LEBANON, WARREN COUNTY.

Population, 3,000.

Person making report, F. Ludlow, Clerk of Board of Health.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected by cart.

The garbage is disposed of in public dump.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The health officer does the work of disinfecting.

Amount of formaldehyde used, eight to ten ounces per 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Diphtheria, 1; scarlet fever, 10; typhoid fever, 1. Total number of infectious diseases, 12.

LEESVILLE, CARROLL COUNTY.

Person making report, A. R. Morrison, health officer.

There are no abandoned wells used

to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Method for disinfecting houses after infectious diseases: Spread out or hang up all wearing apparel and clothes of all kinds, open wardrobe and close all openings of the house, then set your generator going.

The work of disinfecting is done by me personally.

I use Dr. George Leininger's generator and about one and one-half ounces of solidified formaldehyde to 1,000 cubic feet of air space.

There were no cases of infectious diseases reported.

LEETONIA, COLUMBIANA COUNTY.

Population, 3,000.

Person making report, Dr. S. R. McCready, health officer.

Amount spent by the Board of Health during the year was \$250.

For violations of health laws or orders of the Board of Health there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Do not inspect the dairy before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

All garbage is burned that can be disposed of in that way. The balance is hauled away to a place provided for that purpose.

Moisten bed covers and other articles with 40 per cent. solution formaldehyde, then disinfect with formaldehyde gas after patient is removed from the room is my method for disinfecting houses after infectious diseases.

Disinfecting is done by a competent person under my direction.

Have had no calls to disinfect houses or rooms on account of consumption.

We use Johnson & Johnson's large formaldehyde fumigator, using 500 grains paraform to 1,000 cubic feet of air space.

Seven cases of typhoid fever and sixtyfour of whooping cough were the only infectious diseases reported.

LEWISBURG, PREBLE COUNTY.

Population, estimated 600.

Person making report, A. N. Cox, health officer.

Board of Health spent \$22.15 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses was not made.

No system is employed for the collection of garbage.

LEWISVILLE, MONROE COUNTY.

Population, 175.

Person making report, Dr. L. P. Diehl.

Nothing was spent by the Board of Health during the year.

For violations of health laws or order of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no dairy.

The sanitary conditions of our schoolhouses were inspected as required.

We are in the habit of hauling the garbage in the country.

The garbage is disposed of in the country quite a distance from any building.

Method for disinfecting houses after infectious diseases: We use the formaldehyde torch made for such purposes.

Disinfecting is done by me or some one employed.

Have not been called upon to disinfect houses or rooms on account of consumption.

The formaldehyde torch used is made under a guarantee, and has been on the market for quite a while. I don't know as the amount used per cubic feet.

Cases of infectious diseases reported: Diphtheria, 2; membranous croup, 2; typhoid fever, 1; whooping cough, 2; measles, 8. Total number of infectious diseases, 15.

LIMA, ALLEN COUNTY.

Population, 25,000.

Person making report, Dr. A. L. Jones, health officer.

About \$5,000 dollars were expended by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there was one prosecution. A large pool of water was found, caused by leakage in the hydrant. Parties were notified but paid no attention. We had a plumber make the necessary repairs and levied the cost against them, to be collected as taxes.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The entire Board of Health with clerk and health officer inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Disposition of the garbage is made on the city dumping grounds at the edge of the corporation, all of which is turned under the ground or manure thrown over it.

Method for disinfecting houses after infectious diseases: Quarantine patients. Disinfect or clean washed clothes. Give patient bath and let him dress outside of the infectious part of the house. Fumigate with formaldehyde.

Two sanitary officers do the work of disinfecting.

West & Co.'s regenerator; also four small alcohol generators, holding four to eight ounces of 40 per cent. formaldehyde. We use six ounces to every 1,000 cubic feet if we can hold space closed for twenty-four hours. Double the amount if time is proportionately less.

During the year the following cases of infectious diseases were reported: Smallpox, 38; diphtheria, 60; membranous croup, 10; scarlet fever, 90; typhoid fever, 20; measles, 100. Total number of infectious diseases, 318.

LIMAVILLE, STARK COUNTY.

Population, about 150.

Person making report, O. P. Sebrell, health officer.

Except salary for health officer nothing was expended by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made. The school buildings and outhouses were found to be in good condition.

We have no system for the collection of garbage.

The disposal of garbage is made by burying it.

A physician disinfects houses after infectious diseases.

Have had no calls to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 23. Total number of infectious diseases, 25.

LISBON, COLUMBIANA COUNTY.

Population (1900), 3,330.

Person making report, David H. Eells, marshal and health officer.

Amount spent by the Board of Health during the year was \$60.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The dairy is not inspected before giving the license.

Sanitary conditions of our schoolhouses were inspected as required.

No system is employed for the collection of garbage.

Night soil and other garbage is hauled out of the corporation and disposed of on ground provided by health officer.

Method for disinfecting houses after infectious diseases: Stop up all cracks, holes and chimneys. Shake the bedding and other clothing in the room and hang them up so the formaldehyde will get to everything, and then light the generator and let it burn for two hours, then leave it stand about five hours before opening it.

Disinfecting is done by me personally.

Was called upon once to disinfect houses or rooms on account of consumption.

I use a generator made by myself, which will generate more gas than any machine I ever saw. For a room 12x14, 9-foot ceiling, I use a quart of formaldehyde in liquid form.

One case of diphtheria was the only infectious disease reported.

LITHOPOLIS, FAIRFIELD COUNTY.

Population, 360.

Person making report, F. M. Taes, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses were inspected the best I could under the circumstances.

No system is employed for the collection of garbage.

Each family cares for the disposal of its own garbage.

Have no method for disinfecting houses after infectious diseases. Have not been called upon to do that kind of work.

Had no calls to disinfect houses or rooms on account of consumption.

LOCKBOURNE, FRANKLIN COUNTY.

Population, 325.

Person making report, Leon Harrison, village clerk.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was not made.

We have no system for the collection of garbage.

Have never been called upon to disinfect houses or rooms on account of consumption.

The only cases of infectious diseases reported were three cases of whooping cough.

houses or rooms on account of consumption.

I use Leininger's large sized generator, and use one and one-half ounces of solidified formaldehyde to 1,000 cubic feet.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 4; scarlet fever, 11; typhoid fever, 4; whooping cough, 2; measles, 9; other infectious diseases (chicken pox), 1. Total number of infectious diseases, 32.

LOCKLAND, HAMILTON COUNTY.

Population, 2,900.

Person making report, Valentine Harting, health officer.

Following was the amount spent by the Board of Health during the year: Health officer, salary, \$300; other expenses, \$76.

No prosecutions were had for violations of health laws or orders of the Board of Health.

I do not know of any abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouse are inspected semi-annually. They were found to be in good sanitary condition.

We have a man with horse and wagon to collect ashes and garbage two days each week.

The garbage is taken to a farmer north of town where it is disposed of by feeding to hogs.

My method for disinfecting houses after infectious diseases is to take one room at a time, stop all openings, such as grates, flue holes, loose window sash and doors, and when thoroughly filled with formaldehyde gas, cork up the door and keyhole and keep the rooms closed for 36 hours.

Disinfecting is done by me personally.

Have had two calls to disinfect

LODI, MEDINA COUNTY.

Population, 1,200.

Person making report, Henry Sellers, health officer.

Board of Health spent \$45 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There is one abandoned well used to receive house drainage.

No action has been taken to stop the practice.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made as required.

For the collection of garbage we have a man haul it away in closed barrels.

The man who collects the garbage disposes of it on his farm. Some of it he feeds to his hogs.

Method for disinfecting houses after infectious diseases: I use formaldehyde and also sulphur. I use about two ounces to 1,000 cubic feet of air space, but I prefer sulphur. I fumigated a cat in a room 10 feet square with two ounces of formaldehyde and she came out in good shape. Then I put her in another room and used the same amount of formaldehyde and the result was the same.

The work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

I have been using Dr. George Leininger's generator and two ounces of formaldehyde to 1,000 cubic feet of air space.

LOGAN, HOCKING COUNTY.

Population, 4,100.

Person making report, D. A. Rannels, health officer.

Amount spent by the Board of Health during the year was \$530, \$200 of which was carried over from 1903 on account of smallpox.

Twenty-two legal notices were served but no prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

All dairy farms have been inspected by the health officer.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected in barrels, cans and some bins by private arrangement with draymen.

Disposition of the garbage is made on a dump outside of the corporate limits and below water supply.

Formaldehyde gas. Leave house closed tightly for from 12 to 24 hours is my method for disinfecting houses after infectious diseases.

Disinfecting is done by myself or an officer under my instructions.

Upon request undertakers attend to disinfecting houses or rooms on account of consumption.

The Mulford generator is used. The amount of formaldehyde, one pint to 1,000 cubic feet of air space.

Would suggest the organization of

the health officers of the several townships, villages and cities into a County Board of Health, with a county health officer, and provision made for at least one meeting every three months.

Following cases of infectious diseases were reported: Scarlet fever, 2; typhoid fever, 9; whooping cough, 29; measles, 250; other infectious diseases, 10. Total number of infectious diseases, 300.

LONDON, MADISON COUNTY.

Population, about 4,000.

Person making report, Dr. W. H. Christopher, health officer.

During the year the Board of Health spent \$260.

We have managed so far to secure compliance with our regulations without prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses were inspected. The health officer is a member of the Board of Education. We have the Smead dry closets in the basement of school building and we make special effort to keep it clean. We realize that flush closets would be better but cannot at present have them. Have no public sewerage.

We have no system for the collection of garbage further than it is collected largely by farmers outside of the corporation and fed to their hogs. With the exception of a few people, whom we watch carefully, we do not have much trouble along this line.

Method for disinfecting houses after infectious diseases: We use almost exclusively the formaldehyde gas generators and see that the disinfecting is thoroughly done.

Have a good sanitary officer who does the disinfecting, and in special cases I oversee the work.

Have had three or four calls to disinfect houses or rooms on account of consumption. I urge disinfection on all occasions.

We use the George Leininger large size generator according to instructions.

I suggest that all village councils be urged to pass an ordinance similar to the one suggested by the State Board of Health, with penalties sufficiently severe to enable the health officer to have his orders enforced. Most councils are slow to do this unless urged to do so.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 2; whooping cough, 3. Total number of infectious diseases, 6.

LORAIN, LORAIN COUNTY.

Population, 25,000, estimated.

Person making report, Dr. Edw. V. Hug, health officer.

During the year the Board of Health spent \$3,154.

For violations of health laws or orders of the Board of Health there were two arrests for violating quarantine. They were reprimanded by the Mayor.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

Inspection is made of the dairy before giving the license.

Sanitary conditions of our schoolhouses were inspected.

Collection of garbage is made by contract.

Disposition of the garbage is made by dumping on a farm and feeding.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

Have been called upon ten times to disinfect houses or rooms on account of consumption.

Autoclave and Leininger's generator are used. Amount of formaldehyde is 12 ounces of the 40 per cent. solution to each 1,000 cubic feet of air space.

I suggest that boards should have control of pesthouses, garbage disposal and dumping grounds.

Cases of infectious diseases reported were: Smallpox, 7; diphtheria and membranous croup, 175; scarlet fever, 25; typhoid fever, 47; whooping cough, 1; measles, 41; other infectious diseases, 25. Total number of infectious diseases, 321.

LOUDONVILLE, ASHLAND COUNTY.

Population, 1,900.

Person making report, M. R. Walter, clerk.

Amount expended by the Board of Health during the year was \$92.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Before giving the license the dairy is placed under the inspection of the Milk and Food Committee and registration is required.

Inspection of the sanitary conditions of our schoolhouses was made.

For the collection of garbage the village has dump grounds with prescribed regulations.

Garbage is disposed of according to above regulations. All garbage must be deposited on the dump ground and finally covered with ground. Night soil from privy vaults must be buried in a trench at dump ground and covered with at least 12 inches of dirt.

Formaldehyde fumes is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the health officer.

Have had three calls to disinfect houses or rooms on account of consumption.

Dr. Geo. Leininger's formaldehyde generator is used. One-half ounce of formaldehyde per 1,000 cubic feet of air space is used.

Total number of infectious diseases reported were one case of smallpox and three cases of whooping cough.

LOUISVILLE, STARK COUNTY.

Population, 1,500.

Person making report, Dr. R. G. Walker, health officer.

The Board of Health spent \$244.15 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Each family makes its own disposition of the garbage.

Method for disinfecting houses after infectious diseases: Fumigate with formaldehyde. Sometimes I use formalin in Novy's formaldehyde generator; sometimes Dr. Leininger's solidified formaldehyde and his generator.

I attend to the disinfecting personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

From one-half to one ounce of solidified formaldehyde per 1,000 cubic feet of air space is used.

Three cases of smallpox and four of diphtheria were the total number of cases of infectious diseases reported.

LOVELAND, CLERMONT, WARREN AND HAMILTON COUNTIES.

Population, 1,500.

Person making report, Dr. F. H. Lever, health officer.

During the year the Board of Health spent \$58.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage. I intend to make an effort this coming year to get council to take action in this matter, so that the garbage can be disposed of at least during the summer months. Heretofore private parties have been hauling the garbage away for hog feed, but not under any municipal contract.

Following is my method for disinfecting houses after infectious diseases: I have been heating the rooms to about 80 degrees, Fahrenheit, then hanging up several sheets and saturating same with formaldehyde with a formaldehyde sprayer then closing room tight and leaving closed for eight to twenty-four hours, having the wood-work washed with corrosive sublimate solution. Have been supplementing this with Lister's formaldehyde fumigators, and where heat could not be obtained, have used stick sulphur.

Disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have been called upon to furnish fumigators for one room.

The generator belonging to the board is made by J. H. Rhodes & Co., of Chicago, and 10 to 16 ounces of formaldehyde is used for 1,000 cubic feet of air space.

The efficiency of local boards of health could be enhanced if the councils of all villages were compelled by law to keep at least a small sanitary fund on hand at all times. Here I have been compelled to wait as long as six months before I would be repaid the money expended for disinfection, etc., and then some members would refuse to sign the bill on the grounds that

private parties should pay for their own disinfection. One does not like to have a lawsuit about such matters, and taking it all around, it makes the position of health officer rather an unpleasant one where such conditions exist.

Cases of infectious diseases reported: Diphtheria, 6; scarlet fever, 8; typhoid fever, 5; measles, 5. Total number of infectious diseases, 24.

LOWELL, WASHINGTON COUNTY.

Population, 500.

Person making report, J. D. Mason, clerk.

Five dollars were spent by the Board of Health during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Sanitary conditions of our school-houses were inspected.

No regular system is employed for the collection of garbage.

Disposition of the garbage is made by hauling outside the city limits and burying it.

Burn sulphur and scrub with disinfectant soap is my method for disinfecting houses after infectious diseases.

Health Officer A. J. Thompson does the work of disinfecting.

Have had no calls to disinfect houses or rooms on account of consumption.

We have no generator.

LOWELLVILLE, MAHONING COUNTY.

Population, 1,800, estimated; census, 1,137.

Person making report, J. H. McWilliams, health officer.

During the year the Board of Health expended \$28.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have no system for the collection of garbage. Each family takes care of its own.

It is disposed of on garbage dump.

Have used no method for disinfecting houses after infectious diseases during last year. Used sulphur and alcohol heretofore.

The work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Only cases of infectious diseases reported during the year were four cases of typhoid fever.

LOWER SALEM, WASHINGTON COUNTY.

Population, 200.

Person making report, Jos. P. Harts-horn, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

We have no dairies.

The sanitary conditions of our schoolhouses were inspected as required.

Each family disposes of its own garbage.

Use carbolic acid inside and lime outside of house where the germs are liable to settle is my method for disinfecting houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

Seventeen cases of measles were the only infectious diseases reported.

LUCAS, RICHLAND COUNTY.

Population, 350.

Person making report, Wm. Baer, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

No special disposition is made of the garbage.

Have not had occasion to disinfect houses after infectious diseases.

Have had no disinfecting to do.

Have not been called upon to disinfect houses or rooms on account of consumption.

Have used no generator.

There were no cases of infectious diseases reported during the year.

Garbage is collected in air-tight vessels.

Disposition of the garbage is made by hauling to dumping grounds two miles away and buried in trenches not less than 24 inches deep.

Use Dr. George Leininger's solidified formaldehyde generator is my method for disinfecting houses after infectious diseases.

At all times the work of disinfecting is done by me personally where fumigating is necessary.

For the last twelve months I have had no calls to disinfect houses or rooms on account of consumption.

Generator used is Dr. George Leininger's.

No cases of infectious diseases reported.

 McCONNELSVILLE, MORGAN COUNTY.

Population, 1,900.

Person making report, William Dille, health officer.

Amount spent by the Board of Health during the year was \$175.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected and disposed of by carting to dump.

Sulphur and wood alcohol is my method for disinfecting houses after infectious diseases. I sometimes use formaldehyde.

Disinfecting is done by me personally.

Have had one call to disinfect houses or rooms on account of consumption.

We do not use a generator.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 1; scarlet fever, 1; typhoid fever, 2; other infectious diseases, 6. Total number of infectious diseases, 12.

 MCCOMB, HANCOCK COUNTY.

Population, 1,565.

Person making report, Scott W. Preble, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

MACKSBURG, WASHINGTON COUNTY.

Population, 600.

Person making report, J. B. DeLong, health officer.

The Board of Health spent \$87.25 during the year.

For violations of health laws or orders of the Board of Health there was one prosecution. Party was fined \$50 and costs, amounting to \$54.55.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Sanitary conditions of our schoolhouses were inspected and fumigated.

Have no system for the collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Part of the work of disinfecting is done by me and part by E. A. Waller, undertaker.

Have not been called upon to disinfect houses or rooms on account of consumption.

Mr. Waller being away, I am unable to give the name of the generator used.

Fifteen cases of smallpox and one of typhoid fever were the infectious diseases reported.

MADISON, LAKE COUNTY.

Population, 850.

Person making report, J. V. Winans, health officer.

About \$35 were spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions

of our schoolhouses was made. We have disinfected with formaldehyde each term.

No system is employed for the collection of garbage.

Use Park, Davis & Co.'s formaldehyde steam generator is my method for disinfecting houses after infectious diseases.

We have an experienced sanitary officer to attend to the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is about one pint to an ordinary room.

Cases of infectious diseases reported: Scarlet fever, 2; measles, 8. Total number of infectious diseases, 10.

MADISONVILLE, HAMILTON COUNTY.

Population, 4,000.

Person making report, Dr. C. L. Metz, health officer.

During the year the Board of Health spent \$148.75.

For violations of health laws or orders of Board of Health, one prosecution was had—for running contaminated water into the street. Party was convicted and fined \$10 and costs.

In three instances abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No action has been taken to stop the practice.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Private parties collect garbage. No other system employed.

Disposition of the garbage is made by hauling to a dump away from the village and water courses by private parties at their expense.

Formaldehyde fumigation is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the sanitary officer under the supervision of the health officer.

Houses or rooms are disinfected in every case of consumption after death or removal.

The F. E. Novy and Park, Davis & Co. 295 c. c. generators are used, and 10 ounces of formaldehyde to 1,000 cubic feet air space.

I suggest paying liberal salaries to the health officer and clerk and also to sanitary police.

The cases of infectious diseases reported were: Diphtheria, 4; membranous croup, 1; scarlet fever, 8; typhoid fever, 4; measles, 24; other infectious diseases, 4. Total number of infectious diseases, 45.

washing walls and floors with bi-chloride, of mercury, 1-1,000, and burning such furniture, etc., that cannot be disinfected.

Work of disinfecting is done by myself or some member of the board.

Have not been called upon to disinfect houses or rooms on account of consumption.

Leininger's generator is used, and two ounces of solidified formaldehyde to 1,000 cubic feet and keep closed for eight hours. Ten ounces of the 40 per cent. solution is used for 1,000 cubic feet of air space and keep closed for eight hours.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 2; whooping cough, 20; measles, 30. Total number of infectious diseases, 55.

MAGNOLIA, CARROLL AND STARK COUNTIES.

Population, 800.

Person making report, H. E. Harsh, Clerk of Board of Health.

Thirty dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were not inspected.

We have no system for the collection of garbage.

No disposition is made of the garbage.

For disinfecting houses after infectious diseases my method is to fumigate with formaldehyde and sulphur,

MAINEVILLE, WARREN COUNTY.

Population, 375.

Person making report, J. G. Trimble, health officer.

Nothing was spent by the Board of Health during the year.

There are no abandoned wells used to receive house drainage, drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouse was made and the building was found to be in good condition, as it is new.

No system is employed for the collection of garbage.

Disinfecting is done by Dr. Wm. F. Moss.

Have not been called upon to disinfect houses or rooms on account of consumption.

Five cases of scarlet fever were the only infectious diseases reported.

MALINTA, HENRY COUNTY.

Population, 491.

Person making report, M. M. Spangler, health officer.

Board of Health spent \$3.50 during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

The garbage is disposed of by burying.

For disinfecting houses after infectious diseases I close the house up tight.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

I do not use less than 10 ounces of formaldehyde of the 40 per cent. solution for a room 10 feet square for each 1,000 cubic feet of air space.

One case of scarlet fever was the only case of infectious diseases reported.

bage at places designated by the Board of Health.

Sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not had any calls to disinfect houses or rooms on account of consumption.

Generator used is Dr. George Leinger's.

One case of typhoid fever was the only case of infectious diseases reported during the year.

MANSFIELD, RICHLAND COUNTY.

Population, 22,000.

Person making report, Dr. R. S. Boles, health officer.

Board of Health spent \$2,070.66 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

For the collection of garbage each person is required to provide a metal can, with close fitting lid, in which garbage is placed, and is removed by a licensed collector in closed, tight-fitting tank wagons. Producers are required to pay for the removal of garbage individually, with no cost to the city.

The garbage is disposed of by burning in crematory.

I use solidified formaldehyde as a method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

MALVERN, CARROLL COUNTY.

Population, about 1,000.

Person making report, Dr. J. A. Rhel, health officer.

Amount spent by the Board of Health during the year was \$25.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have not inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Each family disposes of its own gar-

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and one to two ounces of formaldehyde to 1,000 cubic feet of air space.

Would suggest first, that Boards of Health should be required to appoint a competent inspector, or inspectors, as the condition of things may require, to inspect all live stock, or fowls, before being killed, and all meats intended for consumption, also butter, cheese, eggs and all other foodstuffs of a perishable nature, compensation to be provided for by Boards of Health, or councils, and all rules governing the same.

Second, I would also suggest the absolute need of all physicians being required to report to the health officer promptly within twenty-four or thirty-six hours all cases of venereal diseases, and that said subjects be quarantined in such a manner as to give immunity to innocent parties. The same penalty should attach to neglect on the part of the physician in these cases as in other dangerous diseases.

Cases of infectious diseases reported: Smallpox, 8; diphtheria, 13; scarlet fever, 8; typhoid fever, 38; whooping cough, 3; measles, 24; other infectious diseases, 5. Total number of infectious diseases, 99.

MARENGO, MORROW COUNTY.

Population, 290.

Person making report, A. L. Pegg, health officer and marshal.

Five dollars for salary was the amount expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board has never issued a license to sell milk.

An inspection was made of the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

A dump is provided for the disposal of the garbage.

Method for disinfecting houses after infectious diseases: The walls, ceilings, floors, windows, woodwork and furniture, etc., should be thoroughly washed with a solution made by adding four ounces of a strong corrosive sublimate solution to one gallon of water and apply it to all ledges and crevices, etc.

Disinfecting is done by the family.

Had no calls to disinfect houses or rooms on account of consumption.

We have not used a generator.

Total number of cases of infectious diseases reported were two cases of typhoid fever.

MARIETTA, WASHINGTON COUNTY.

Population, 14,000.

Person making report, Dr. C. W. Race, health officer.

Board of Health spent \$1,907.76 during the year.

For violations of health laws or orders of the Board of Health Evans Armstrong was convicted for violating standing order No. 33 relative to the handling of garbage June 21. He was fined \$4.25. Garnet Stevens was convicted of violating an order and regulation for public health and prevention and restriction of disease in the city of Marietta. He was fined \$54.25 September 6. Helen Hutton, Irene Williams, Mamie Mathews on October 2 were fined \$14.25 for the same offense as Stevens.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License is required to sell milk by the board.

An inspection is made of the dairy before giving the license.

The sanitary conditions of our schoolhouses were inspected.

The system for the collection of garbage is carried on by private individuals.

Disposition of the garbage is made by hauling to the city dumping grounds.

The use of formaldehyde gas, eight to ten ounces to 1,000 cubic feet; destruction of property that cannot be sterilized; boiling of bedding used in the care of the sick; destruction of infected matter by approved disinfectants during the illness is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have had five calls to disinfect houses or rooms on account of consumption.

West Disinfecting Company's generator No. 2 is used. Eight to ten ounces of formaldehyde to 1,000 cubic feet of air space, room being sealed and closed for twenty-four hours.

I suggest appointing a health officer whose general jurisdiction would be that of a county not limited to city, village or township; more strict enforcement of the rules of the State Board of Health; a passage of an act empowering the State Board of Health to create the local boards of health; the appointment of all the employes of the local Board of Health by the State Board with the consent of the local board, employes to be under civil service and compensation sufficient to secure reliable and efficient service.

During the year the following cases of infectious diseases were reported: Smallpox, 1; diphtheria, 12; membranous croup, 1; scarlet fever, 9; typhoid fever, 18; whooping cough, 2; measles, 93. Total number of infectious diseases, 136.

MARION, MARION COUNTY.

Population, 15,000.

Person making report, Dr. E. H. Raf-

feusperger, Clerk of Board of Health.

Amount spent by the Board of Health was \$6,037.52. For smallpox epidemic \$4,898.47; regular expenses, \$1,139.05.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected and everything was found in satisfactory condition.

Collection of garbage is made by scavengers, who are licensed and required to secure a permit from the board for every job.

The garbage is taken several miles into the country and disposed of by burying on different farms with the owners consent.

Use formaldehyde gas generators and scrub all woodwork, etc., with a strong bi-chloride solution is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting under my personal supervision.

After every death or removal we disinfect houses or rooms on account of consumption.

We use the West generator and from eight to ten ounces of formaldehyde to every 1,000 cubic feet of air space.

Would suggest that members be paid for their services, as there is not enough glory and honor in the position to be sought after by good, efficient men.

During the year the following cases of infectious diseases were reported: Smallpox, 76; diphtheria, 12; membranous croup, 2; scarlet fever, 11; typhoid fever, 40; measles, 24; other infectious diseases (chicken pox), 24. Total number of infectious diseases, 189.

MARTINS FERRY, BELMONT COUNTY.

Population, about 10,000.

Person making report, R. A. Lindemuth, health officer.

Board of Health spent \$506.15 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

An inspection of the sanitary conditions of our schoolhouses was made.

For the collection of garbage a regular collector is hired by the board for six months each year. He makes what he can out of it the remaining six months.

Garbage is disposed of by burying.

My method for disinfecting houses after infectious diseases is to make room air tight and use a formaldehyde generator from outside of door.

The work of disinfecting is done by me personally

Have had three calls to disinfect houses on account of consumption.

The Primus No. 1 generator is used. Use one pint per 1,000 cubic feet of air space in some cases. I also use 10 pounds of sulphur to a room 14x14x10.

Cases of infectious diseases reported: Diphtheria, 7; scarlet fever, 21; typhoid fever, 16; whooping cough, 35; measles, 47. Total number of infectious diseases, 128.

MARTINSVILLE, CLINTON COUNTY.

Population, 400.

Person making report, John T. Crawford, marshal and health officer.

Five dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected with horse and cart and disposed of in ditches outside of corporation.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Do not use a generator. I use a bucket.

Total number of infectious diseases reported were eight cases of scarlet fever.

MASSILLON, STARK COUNTY.

Population, 14,400.

Person making report, Dr. T. Clarke Miller, health officer.

About \$850 was the amount spent by the Board of Health.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk by the board.

Sanitary conditions of our schoolhouses are looked after constantly.

No system is employed for the collection of garbage.

Disposition of the garbage is made by hauling it away.

Use formaldehyde gas. Thoroughly fill the infected rooms and keep them closed as tight as possible for eight to twelve hours.

The health officer or sanitary officer or both do the work of disinfecting.

Have not been called more than two or three times to disinfect houses or rooms on account of consumption.

We use several apparatus, and from 12 ounces to one pound of formaldehyde to 1,000 cubic feet of air space.

Would suggest careful selection of members, and especially careful selection of health officer. All should be men who know, or at the least, want to know.

Cases of infectious diseases reported: Diphtheria, 16; scarlet fever, 61; typhoid fever, 7; measles, 302. Total number of infectious diseases, 386.

MAUMEE, LUCAS COUNTY.

Population, 2,500.

Person making report, J. E. Wilcox, Secretary of Board of Health.

Amount spent by the Board of Health during the year was \$130.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage. It is all gathered up by gardeners.

My method for disinfecting houses after infectious diseases is to use a formaldehyde generator.

Disinfecting is done by the health officer.

Have never been called upon to disinfect houses or rooms on account of consumption.

MECHANICSBURG, CHAMPAIGN COUNTY.

Population, 1,700.

Person making report, Dr. J. C. Hathaway, health officer.

During the year the Board of Health spent \$42.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Collection of garbage is made by man with wagon and disposed of on a dump.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by myself or the attending physician.

Had three calls to disinfect houses or rooms on account of consumption.

Schering & Glatz's generator is used. Use 60 pastils for 1,000 cubic feet of air space.

Two cases of membranous croup and three of typhoid fever were the only cases of infectious diseases reported.

MEDINA, MEDINA COUNTY.

Population, 2,300.

Person making report, A. Pomroy, health officer.

Nine dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made as required.

Garbage is hauled to a lot purchased for the purpose of disposing of it.

Method for disinfecting houses after infectious diseases: Close all rooms as tightly as possible and insert tube in keyhole attached to generator.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Novy generator is used and not less than two ounces of formalin, 40 per cent. solution.

Total number of cases infectious diseases during the year, 31: Scarlet fever, 1; measles, 30.

MELROSE, PAULDING COUNTY.

Population, 450.

Person making report, Thos. J. Myers, health officer.

Five dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

We dispose of the garbage on a dump ground one mile from the village.

As I have had no disinfecting to do this year I have no method for disinfecting houses after infectious diseases.

MENDON, MERCER COUNTY.

Population, 599.

Person making report, A. Brewer, Mayor.

Board of Health spent \$25 during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no dairies.

The sanitary conditions of our schoolhouses were inspected.

We collect and haul the garbage to the dump ground, and if offensive or anything that would decay, we bury it.

Disposition of the garbage is made by burying or burning it.

Use formaldehyde freely is my method for disinfecting houses after infectious diseases.

The physician does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

We use Dr. George Leininger's solidified formaldehyde generator. One ounce of the solidified formaldehyde to 1,000 cubic feet of air space is used.

There were thirteen cases of infectious diseases reported, as follows: Diphtheria, 7; typhoid fever, 6.

MENTOR, LAKE COUNTY.

Population, 900.

Person making report, Dr. J. W. Lowe, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Each family disposes of its own garbage every day either by burning or burying. Accumulation of garbage is not allowed.

Method for disinfecting houses after infectious diseases: We follow out the directions and instruction given by the State Board of Health.

The health officer does the work of disinfecting personally.

Have not been called upon to disinfect houses or rooms on account of consumption, as we have not had a death from consumption during the year. We had one suspected case not reported by the attending physician.

I use a small hand generator in each room, using about two ounces of 40 per cent. solution of formaldehyde per 1,000 cubic feet of air space.

I would suggest that all health officers be requested to attend the annual meeting of the state and local Boards of Health at the expense of the municipality represented, and that the State make some provisions for a better education of the people as to the nature of infectious and contagious diseases. A chapter on the subject in the public school reading books might be brought about.

No cases of infectious diseases reported.

MIAMISBURG, MONTGOMERY COUNTY.

Population, 4,500.

Person making report, Dr. A. H. Blossom, health officer.

During the year the Board of Health spent \$670.41.

For violations of health laws or or-

ders of the Board of Health there was one prosecution—breaking quarantine. Jail and workhouse sentence inflicted.

Practice of using abandoned wells to receive house drainage, or drainage from water closets has been abated.

License to sell milk is not required by the board.

Garbage is collected and disposed of outside of corporation.

Method for disinfecting houses after infectious diseases: We use two Lentz generators and 40 per cent. formaldehyde.

Disinfecting is done by the sanitary officer.

Had no calls to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is from eight to fifteen ounces.

Following cases of infectious diseases were reported: Smallpox, 29; diphtheria, 5; scarlet fever, 1; typhoid fever, 2. Total number of infectious diseases, 37.

MIDDLEBURG, LOGAN COUNTY.

Population, 300.

Person making report, C. C. Heath, health officer.

Amount spent by the Board of Health during the year was \$8.50.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

An inspection of the sanitary conditions of our schoolhouses was made and found to be in bad condition.

We have no system for the collection of garbage.

Disposition of the garbage is made in a pit.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's formaldehyde generator is used.

The only cases of infectious diseases reported were two cases of scarlet fever and six of whooping cough.

Have had no calls to disinfect houses or rooms on account of consumption.

There was no report made on cases of infectious diseases.

MIDDLEPORT, MEIGS COUNTY.

Population, 3,300, estimated.

Person making report, Dr. David Sisson, health officer.

Except the salaries of the health officer and clerk, the Board of Health expended nothing during the year.

For violations of health laws or orders of the Board of Health, two prosecutions were had for violating the rule governing hog pens. The results were conviction, and a fine of \$10 and costs in each case. The fines were remitted when parties conformed to the rule.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage. Section 2142 of the Statutes seems to include village councils as well as boards of health in the matter of garbage disposal, hence "what is everybody's business nobody attends to."

Each householder disposes of his own garbage.

We have depended on sulphur fumigation according to instructions of the State Board of Health as a method for disinfecting houses after infectious diseases.

Disinfecting is done under the personal supervision of the health officer.

MIDDLETOWN, BUTLER COUNTY.

Population, 10,000.

Person making report, Dr. G. D. Lummis, health officer and clerk of Board of Health.

Amount spent by the Board of Health during the year was \$968.78.

For violations of health laws or orders of the Board of Health there was one prosecution—refusing to clean vault. Cleaned by board and expenses certified to auditor to be levied against party as taxes.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The dairies are inspected.

Inspection of the sanitary conditions of our schoolhouses has not been made, but will do so.

For the collection of garbage we have licensed collectors.

Disposition of the garbage is made on dump in Miami River, below city limits.

Method for disinfecting houses after infectious diseases: Formaldehyde.

The work of disinfecting is done by the sanitary officer.

Have never been called upon to disinfect houses or rooms on account of consumption.

Generator used is Max Wocher & Sons'. Amount of formaldehyde used is 10 to 14 ounces to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1; membranous croup, 1; scarlet fever, 22; typhoid fever, 3. Total number of infectious diseases, 28.

MIDLAND, CLINTON COUNTY.

Population, 380.

Person making report, Dr. Leonidas Boulware, health officer.

Nothing was spent by the Board of Health during the year. My salary for the year, \$12, is unpaid.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected on October 12, 1904; conditions perfect.

For the collection and disposal of garbage we compel each individual to burn and bury all combustible matter.

My method for disinfecting houses after infectious diseases is to properly close room or house and generate formaldehyde sufficient to penetrate clothing and crevices.

Disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Have used Frank S. Betz's generator sufficiently that I am personally satisfied the desire is fully accomplished.

MILAN, ERIE COUNTY.

Population, 700.

Person making report, Fred Collman, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Have had no houses to disinfect after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

There were no cases of infectious diseases reported.

MILFORD, CLERMONT AND HAMILTON COUNTIES.

Population, 1,200.

Person making report, Dr. Con W. Gatch, health officer.

During the year the Board of Health spent \$38.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

In one case abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No action has been taken to stop the practice.

Board requires no license to sell milk.

The dairy is not inspected before giving the license.

Sanitary conditions of our schoolhouses were inspected.

Garbage is collected by an employee of the village with horse and cart twice a week or oftener if necessary.

Disposition of the garbage is made by burying.

Use sulphur and formaldehyde vapors is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

One pound of formaldehyde is used.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 1; typhoid fever, 1; whooping cough, 30; measles, 5. Total number of infectious diseases, 39.

MILFORD CENTER, UNION
COUNTY.

Population, 682.

Person making report, J. W. Perkins, health officer.

Fifty dollars was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Garbage is disposed of on dump outside of corporation.

Burn sulphur, two or three pounds to each room, close tight and place on water bath and leave for twenty-four hours is my method for disinfecting houses after infectious diseases.

Disinfecting is done by the attending physician.

Have never been called upon to disinfect houses or rooms on account of consumption.

We do not use a generator.

Total number of cases of infectious diseases reported were two cases of measles.

MILLBURY, WOOD COUNTY.

Population, 300.

Person making report, Dr. C. M. Deibert, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made by the Board of Education.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Things that cannot be disinfected I burn if possible; use boiling water and corrosive sublimate freely and sulphur and wood alcohol.

The work of disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

No report made on cases of infectious diseases.

MILLERSBURG, HOLMES COUNTY.

Population, 1,998.

Person making report, Chas. A. Estill, health officer.

Ten dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Compel property owners to dispose of garbage, and in certain cases the street commissioner removes same.

We have had no cause to disinfect. Our practice is to follow advice of a physician.

Have not been called upon to disinfect houses or rooms on account of consumption.

MINERAL RIDGE, TRUMBULL COUNTY.

Population, 1,130.

Person making report, Dr. J. M. Elder, health officer.

During the year the Board of Health spent \$100.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The dairy is not inspected before giving the license.

The sanitary conditions of our schoolhouses were inspected.

Collection of garbage is made in cans.

Garbage is disposed of out of town.

Use formaldehyde, either solidified or liquid by generator and special devices for same.

Sanitary Policeman J. T. Peterson or myself do the work of disinfecting.

During the year I have been called upon twice to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Diphtheria, 5; membranous croup, 2; typhoid fever, 12; whooping cough, 10; measles, 12. Total number of infectious diseases, 41.

MINERVA, STARK AND CARROLL COUNTIES.

Population, 1,300.

Person making report, Arthur Thomas, health officer.

Amount spent by the Board of Health during the year was \$16.10.

On May 10, 1904, there was one prosecution for violations of health laws or orders of the Board of Health. Village of Minerva against Jacob Slentz, for removing contents of a

privy vault without permit. He pleaded guilty and was fined the costs, \$3.00.

Several abandoned wells are used to receive anything that will run into them. At the request of the village council, no action has been taken to prevent such use.

The board does not require a license to sell milk.

An inspection was made of the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Disposition of the garbage is left to the individual to do as he likes with it so long as his method does not become a nuisance.

Method for disinfecting houses after infectious diseases: Seal the rooms or house with exposed contents therein and use formaldehyde.

Disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. Leininger's generator and Leininger's solidified formaldehyde, approximately one and one-half ounces per 1,000 cubic feet of air space.

Would suggest that the power of the State Board of Health in local matters should be increased. The "Orders and Regulations" should be provided and enforced by the State rather than by village ordinance.

One case of diphtheria, three of typhoid fever and twelve of measles were the cases of infectious diseases reported.

MINGO JUNCTION, JEFFERSON COUNTY.

Population, 3,800.

Person making report, Robert McElroy, health officer.

Have no Board of Health. Council appoints health officer. Nothing was spent during the year.

No prosecutions were had for viola-

tions of health laws or orders of the Board of Health. The health officer takes notice of all filth. It has to be cleaned up to his satisfaction.

In case abandoned wells are used to receive house drainage, or drainage from privies or water closets the health officer stops all such practices.

A license to sell milk is not required.

The dairies are inspected.

We have a wagon come and haul the garbage away.

The garbage is disposed of on a dumping ground and buried three feet below the surface.

We use sulphur and sometimes formaldehyde as a method for disinfecting houses after infectious diseases.

I always take a man with me when disinfecting. In all cases I see that it is attended to.

I use the Moffatt formaldehyde generator.

Cases of infectious diseases reported: Diphtheria, 5; scarlet fever, 3; typhoid fever, 8; whooping cough, 12; measles, 15. Total number of infectious diseases, 43.

MINSTER, AUGLAIZE COUNTY.

Population, 1,600.

Person making report, Robert L. Lant, health officer.

Amount spent by the Board of Health during the year was \$25.

For violations of health laws or orders of the Board of Health, no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected and dumped on a place selected by council outside of city limits.

Disposition of the garbage is made by burning and burying.

Physicians do the work of disinfecting.

There were no cases of infectious diseases reported.

MONROEVILLE, HURON COUNTY.

Population, 1,300.

Person making report, Dr. E. R. Kreider, health officer.

About \$10 were spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

The garbage is disposed of by burying in most instances on the premises.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Sanitary Officer George Labar does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Novy generator bought of Park, Davis & Co. is used. Usually we use about one pint of formaldehyde to an ordinary room.

MORRISTOWN, BELMONT COUNTY.

Population, 352.

Person making report, A. M. Poole, health officer.

Fifteen dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made. The sanitary conditions of the school building are good. The outside conditions are bad on account having no privy for male pupils.

We have no system for the collection of garbage.

No disposition of the garbage is made.

Since I assumed the office I have not been called upon to disinfect houses after infectious diseases.

Disinfecting is done by me personally or by a physician.

Have had no calls to disinfect houses or rooms on account of consumption.

Two cases of smallpox were the only cases of infectious diseases reported.

MORROW, WARREN COUNTY.

Population, 875.

Person making report, A. J. Koeble, health officer.

Amount spent by the Board of Health during the year, \$80.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

Collection of garbage is made twice a week.

Garbage is disposed of below town.

Use formaldehyde generator is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

The Primus generator is used.

One case of diphtheria was the only case of infectious disease reported.

MT. BLANCHARD, HANCOCK COUNTY.

Population, 635.

Person making report, C. M. Wolford, health officer.

Board of Health spent \$15 during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Inspection of the sanitary conditions of our schoolhouse was made. We heat and ventilate our school building in the very best modern way.

Garbage is disposed of by furnace.

Fumigate with sulphur and alcohol is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have been called upon twice to disinfect houses or rooms on account of consumption.

MT. GILEAD, MORROW COUNTY.

Population, 1,700.

Person making report, Dr. W. L. Case, health officer.

During the year the Board of Health spent \$60.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk. The milk supply is from a

single dairy, and from personal knowledge I know every precaution is taken to produce the purest and best milk possible.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Garbage from groceries, restaurants and other places is taken to a specified place beyond the corporate limits and thrown on the ground. The place of disposal is about one-fourth mile from the nearest residence and about 80 rods from the highway.

Sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is all done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption this year. The case reported died at Columbus insane hospital.

The West Company's sanitary regenerator is used. Amount of formaldehyde 10 to 14 ounces per 1,000 cubic feet of air space.

I believe we should have a county health officer having supervision of all township and municipal boards.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 3; typhoid fever, 5; whooping cough, 27; measles, 41. Total number of infectious diseases, 79.

MT. HEALTHY, HAMILTON COUNTY.

Population (1900), 1,351.

Person making report, Dr. J. Deu-forth, health officer.

Salary for health officer, etc., was all that was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Our privies and water closets are

on the surface and are kept clean by owners. We have no sewerage system.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Vaporize formaldehyde in gas generator is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

About one pint of formaldehyde to 1,000 cubic feet of air space is used. A regular generator, coal oil gas burner, to vaporize formaldehyde is used.

Total number of infectious diseases, 2. One case of scarlet fever and one of typhoid fever.

MT. ORAB, BROWN COUNTY.

Population, 700.

Person making report, W. E. Bingamon, health officer.

Amount spent by the Board of Health during the year, \$20.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made and all were found to be in good condition.

Garbage is collected in boxes and barrels and disposed of outside of town.

Method for disinfecting houses after infectious diseases: E. T. Thompson has been disinfecting with formaldehyde.

Work of disinfecting is done by E. T. Thompson.

Have not been called upon to disinfect houses or rooms on account of consumption. No consumption in town.

Do not know the name of the generator used.

Seven cases of typhoid fever and one of whooping cough were the only cases of infectious diseases reported.

MT. PLEASANT, JEFFERSON COUNTY.

Population, 650.

Person making report, Henry B. Mercer, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected as required.

No system is employed for the collection of garbage.

Fumigate with wood alcohol is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Total number of cases of infectious diseases were 25 cases of scarlet fever.

MT. STERLING, MADISON COUNTY.

Population, 1,200.

Person making report, Dr. C. T. Gallagher, health officer.

Board of Health spent \$60 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Garbage is disposed of in any old way.

Method for disinfecting houses after infectious diseases: Fumigation and bi-chloride, etc.

Work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

MT. VERNON, KNOX COUNTY.

Population, 9,000.

Person making report, Dr. H. W. Blair, health officer.

Amount spent by the Board of Health during the year was \$956.

There were no prosecutions for violations of health laws or orders of the Board of Health.

A small number of abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Since the new sewer has been put in they are connecting with sewer and abandoning the old wells.

Board does not require a license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

Owners or tenants are notified by sanitary officer to remove any garbage on premises. Wagon collects garbage daily. Owners pay hauling in most cases.

Disposition of the garbage is made by burning as much as possible and burying the balance at garbage grounds.

We use the Novy generator for formalin also sheet method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

In majority of cases I have been called to disinfect houses or rooms on account of consumption.

Novy generator is used, and one pint of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 7; typhoid fever, 4; measles, 12. Total number of infectious diseases, 26.

MT. WASHINGTON, HAMILTON COUNTY.

Population, 800.

Person making report, Dr. W. C. Langdon, health officer.

The Board of Health spent \$25 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Sulphur is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Scarlet fever, 5; typhoid fever, 4; measles, 16. Total number of infectious diseases, 25.

MURRAY CITY, HOCKING COUNTY.

Population, 1,500.

Person making report, Dr. T. J. Dillinger, health officer.

Amount spent by the Board of Health during the year was \$300.

All health laws or orders of the Board of Health were complied with. No prosecutions were had.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk. We have no milk peddlers in our town.

We have no dairies.

An inspection was made of the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

For disposition of garbage we serve notice on any one who has garbage to have it hauled to the dump and burned or buried.

Method for disinfecting houses after infectious diseases: I have carpets raised and put across chairs; all clothing hung up in rooms; beds all unmade, and ticks and quilts, etc., placed on chairs and hung over bedstead, and persons afflicted stripped and bathed in a bi-chloride and formaldehyde solution. Then I use three generators filled with formaldehyue.

Disinfecting is done by me personally.

Have been called upon three times to disinfect houses or rooms on account of consumption.

E. G. Novy's generator, manufactured by Park, Davis & Co., is used. I never use less than one-half gallon of formaldehyde to the room. If the room is very large, I generate a gallon. I have never had a case to break out the second time in any house I have disinfectied.

Would suggest if our sanitary laws would read that everything necessary to be performed by the Board of Health or health officer shall be done, instead of may or might, etc., it would

give the health officer power to enforce the law. Mays and might give a chance to dodge the sanitary laws. Let us have these laws definite and read *they shall be executed*, then we can accomplish more and better work.

Number of cases of infectious diseases reported during the year were: Smallpox, 4; diphtheria, 2; membranous croup, 1; scarlet fever, 6; typhoid fever, 3; whooping cough, 2. Total number of infectious diseases, 18.

NAPOLEON, HENRY COUNTY.

Population, 5,000.

Person making report, G. W. Cocke, health officer.

During the year the Board of Health spent \$265.94.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Upon inspection the sanitary conditions of our schoolhouses were found to be satisfactory.

Garbage is collected twice a week.

Disposition of the garbage is made by burning it on dump ground.

Have had no occasion to disinfect houses after infectious diseases.

When disinfecting is necessary the undertakers do the work.

NASHVILLE, HOLMES COUNTY.

Population, 300.

Person making report, David Parks, health officer.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Put sulphur in a kettle the same as a pot set in a tub part full of water, then pour alcohol over it and set afire and close the room tight and leave for twelve to fifteen hours is my method for disinfecting houses after infectious diseases.

Dr. A. M. Hayes and myself do the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Have not used a generator.

NAVARRE, STARK COUNTY.

Population, 1,050.

Person making report, John Bailliss, health officer.

About \$50 was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

For the purpose of receiving house drainage, or drainage from privies or water closets, abandoned wells have never been used.

A license to sell milk is not required by the board.

We do not issue a license to dairy-men and no inspection is made of the dairy.

Have inspected the sanitary conditions of our schoolhouses and all public buildings. Every building visited was found to be in fair condition.

No system is employed for the collection of garbage. Every property owner and tenant disposes of their own and to the satisfaction of the health officer.

Have had no occasion as yet to disinfect houses after infectious diseases.

Disinfecting is done by me with the aid of a physician.

Have not been called upon to disinfect houses or rooms on account of consumption.

Would suggest county meetings for all boards of the villages, cities and townships of the county, to meet once or twice a year and compare notes and opinions. I think this would be a good move. Also a little more liberality in the way of funds from the village "dads."

No report was made on cases of infectious diseases.

NELSONVILLE, ATHENS COUNTY.

Population, 7,000.

Person making report, Dr. Nathan Hill, health officer.

Board of Health spent \$1,408.25 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health spent \$1,408.25 during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

The garbage is collected and hauled away, and is disposed of by burning or burying.

Use generator with formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

I have a generator that the plumbers use, and I get a piece of rubber tubing and a half gallon can and pour full of formaldehyde. I fill the house full and many times to overflowing especially in cases of smallpox.

I suggest more money to the health officers, so they can devote more of their time to the duties required.

Cases of infectious diseases re-

ported: Smallpox, 12; diphtheria, 20; scarlet fever, 21; typhoid fever, 15; measles, 14. Total number of infectious diseases, 82.

NEVADA, WYANDOT COUNTY.

Population, 1,000.

Person making report, Dr. H. E. Dwire, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Sulphur fumigation for twenty-four hours is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

There was no report made on cases of infectious diseases.

NEWARK, LICKING COUNTY.

Population, 25,000.

Person making report, Dr. Henry Day, health officer.

Following is the amount spent by the Board of Health and taken from the public health fund during the year: Board's expenses in smallpox, salaries, printing, etc., \$4,514.95; expenses at pesthouse, for rent, salary to occupant, repairs, etc., \$730.32; inspection of milk, etc., \$25.65. Total, \$5,270.92.

For violations of health laws or or-

ders of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board requires a permit to sell milk.

The dairy is not inspected before giving the permit.

No inspection of the sanitary conditions of our schoolhouses was made, there being no threatened epidemic. The sanitary conditions of vaults are good.

Garbage is collected by private arrangement.

Disposition of the garbage is made at dump grounds by burying.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

Have been called upon about six times to disinfect houses or rooms on account of consumption.

Name of generator is Primus No. 1, manufactured at 56 and 58 Prince street, New York. It is about the same as now sold by West Disinfecting Company, Cincinnati, O. We do not measure amount of formaldehyde used but let generator run twenty to thirty minutes, which answers our purpose.

Cases of infectious diseases reported: Smallpox, 28; diphtheria, 22; membranous croup, 3; scarlet fever, 39; typhoid fever, 40; whooping cough, 36; measles, 43; other infectious diseases, 5. Total number of infectious diseases, 216.

NEVILLE, CLERMONT COUNTY.

Population, 265.

Person making report, Dr. Alex F. Joseph, health officer.

Twelve dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for vio-

lations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

Schoolhouse was inspected and the sanitary conditions found to be fair with good ventilation.

We have no system for the collection of garbage.

Garbage is disposed of by carting it away.

Whitewash and sprinkle plenty of lime and fumigate freely with sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Do not use a generator.

NEW BREMEN, AUGLAIZE COUNTY.

Population, 1,500.

Person making report, Dr. E. M. Phelps, health officer.

Amount spent by the Board of Health during the year was \$26.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The dairy is not inspected before giving the license.

An inspection of the sanitary conditions of our schoolhouses was made.

The garbage is collected and hauled away by a man with horse and wagon and charged up to the property owner.

The man burns all paper and dirt and uses fruit, etc., for feeding his hogs.

Disinfect with formaldehyde, using generator according to instructions on box is my method for disinfecting houses after infectious diseases.

The attending physician or myself does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Dr. Leininger's generator and one ounce solidified formaldehyde (Leininger's) per 1,000 cubic feet of air space is used.

Total number of cases of infectious diseases reported was one case of typhoid fever.

NEW CARLISLE, CLARK COUNTY.

Population, 1,000.

Person making report, Wm. A. Higgins, health officer.

The Board of Health spent \$5 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Formaldehyde and burn sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Dr. Leininger's generator is used.

Two cases of scarlet fever and one of measles were the cases of infectious diseases reported during the year.

NEWCOMERSTOWN, TUSCARAWAS COUNTY.

Population, 3,500.

Person making report, Wm. Tidrick, health officer.

During the year the amount spent by the Board of Health was \$196.03.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected in barrels and hauled to a place outside of the city, rented by the council for that purpose.

We use a formaldehyde generator as a method for disinfecting houses after infectious diseases.

Work of disinfecting is superintended by the health officer.

Copper retort formaldehyde generator, purchased from Max Woche & Sons, of Cincinnati, is used. We try to follow directions sent with generator as to the amount of formaldehyde to be used.

Cases of infectious diseases reported: Smallpox, 6; diphtheria, 2; membranous croup, 1; scarlet fever, 48; typhoid fever, 5; measles, 2. Total number of infectious diseases, 64.

NEW CONCORD, MUSKINGUM COUNTY.

Population, 800.

Person making report, Dr. Henry McCreary, health officer.

Board of Health spent \$12 during the year.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

We have no system for the collection of garbage.

Have not been called upon to disinfect houses or rooms on account of consumption.

NEW LEBANON, MONTGOMERY COUNTY.

Population, 180.

Person making report, Lutie Piatt, health officer.

The amount spent by the Board of Health during the year was 50 cents.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk. There are no dairies here. Milk is sold by private families and is the best that can be had.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Disposition of the garbage is made by feeding to hogs and cattle.

Method for disinfecting houses after infectious diseases: I use cresoline in ordinary diseases, but in extraordinary cases I would use formaldehyde and call upon some one who has had experience to instruct me.

Have not been called upon to disinfect houses or rooms on account of consumption.

NEW LEXINGTON, PERRY COUNTY.

Population, 2,200.

Person making report, J. W. Holden, health officer.

Board of Health during the year spent \$120.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made as required.

We have no system for the collection of garbage.

The garbage is disposed of by hauling it away in wagons.

Method for disinfecting houses after infectious diseases: I use a formaldehyde lamp made by Eli Lilly & Co., Indianapolis, Ind.

The work of disinfecting is done by me personally.

Have had four or five calls to disinfect houses or rooms on account of consumption.

The amount of formaldehyde used is one quart to each room.

I suggest raising the salary of the health officer.

Total number of cases of infectious diseases reported were six cases of scarlet fever and four of typhoid fever.

NEW LONDON, HURON COUNTY.

Population, 1,500.

Person making report, A. M. Turner, health officer.

During the year the Board of Health spent \$82.50.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

An inspection of the sanitary conditions of our schoolhouses was made.

Garbage is collected in a wagon and taken outside of corporation where it is disposed of by plowing it under.

Generate formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

We do not disinfect houses on account of consumption.

I cannot give the name of the generator used, for it is one we had made. It has given satisfaction.

Cases of infectious diseases reported: Diphtheria, 1; typhoid fever, 6. Total number of infectious diseases, 7.

NEW MADISON, DARKE COUNTY.

Population, approximately 800.

Person making report, Jesse E. Jones, health officer.

During the month of December, 1904, the Board of Health spent \$8.

Have not discovered any abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Was appointed to office too late in the year to allow me time to inspect the sanitary conditions of our schoolhouses. Will do so this year.

We have no system for the collection of garbage.

Have had no occasion to disinfect houses after infectious diseases.

NEW MATAMORAS, WASHINGTON COUNTY.

Population, 800.

Person making report, A. S. Miracle, health officer.

Amount spent by the Board of Health during the year was \$75.45.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Disposition of the garbage is made by burning it.

Method for disinfecting houses after infectious diseases: Use formaldehyde.

The work of disinfecting is done by me personally.

Had one call to disinfect houses or rooms on account of consumption.

Generator used is manufactured by Park, Davis & Co. Amount of formaldehyde used is as prescribed by law.

Cases of infectious diseases reported: Membranous croup, 3; scarlet fever, 10; typhoid fever, 11; whooping cough, 26; measles, 76. Total number of infectious diseases, 126.

NEW PHILADELPHIA, TUSCARAWAS COUNTY.

Population, 7,000.

Person making report, Dr. George H. Peck, health officer.

Board of Health spent \$207.70 during the year.

For violations of health laws or orders of the Board of Health there were two prosecutions and convictions this fall and last spring—for violating sanitary law. Penalty \$8.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

We have no system for the collection of garbage.

Garbage is taken to city dumping ground, and all substances, vegetable and animal, that is or may become offensive and detrimental to health, required to be burned or buried.

Fumigate with sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

The attending physician under the supervision of the health officer does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Do not know the name of generator used. Candles are mostly used, also generators of large capacity.

Would suggest having a county health officer who will see to it that health laws are enforced in city, village and county.

Cases of infectious diseases reported: Diphtheria, 15; scarlet fever, 1; typhoid fever, 8; whooping cough, 30; other infectious diseases, 18. Total number of infectious diseases, 72.

NEW RICHMOND, CLERMONT COUNTY.

Population, 2,000.

Person making report, Dr. J. A. Windsor, health officer.

During the year the Board of Health spent \$300.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Disposition of the garbage is made in alleys and some in vaults.

Method for disinfecting houses after infectious diseases: After sealing all openings, proceed with fumigation with formaldehyde in Burn's fumigator for six hours, then have rooms closed for four days and then open and air for two days before allowing tenants to occupy.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

I use Burn's generator and four ounces of formaldehyde per 1,000 cubic feet of air space.

Total number of cases of infectious diseases was 110, as follows: Scarlet fever, 7; measles, 103.

NEW RIEGEL, SENECA COUNTY.

Population, 300.

Person making report, Anthony Imber, health officer.

About \$15 were spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The garbage is disposed of by hauling it away.

Have had no occasion to disinfect houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

NEW STRAITSVILLE, PERRY COUNTY.

Population, 2,400.

Person making report, Robert Bell, health officer.

Board of Health spent \$124.75 during the year.

An inspection of the sanitary conditions of our schoolhouses was made as required.

Garbage is collected in wagons.

Disposition of the garbage is made on a dump outside of the corporation.

Generator used is Dr. George Leininger's. About two ounces of formaldehyde to 1,000 cubic feet of air space are used.

Cases of infectious diseases reported: Smallpox, 2; membranous

croup, 2; scarlet fever, 5; typhoid fever, 3; whooping cough, 1. Total number of infectious diseases, 13.

NEWTON FALLS, TRUMBULL COUNTY.

Population 830.

Person making report, H. M. Mealey, health officer.

Amount spent by the Board of Health during the year was \$100.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage. Each property holder keeps his own premises clear.

The garbage is disposed of on the village dump.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by D. M. Bailey, undertaker.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cannot give amount of formaldehyde used. Generally use two and one-half quarts of the solution.

Would suggest villages be compelled to follow the law.

One case of typhoid fever is the only case of infectious diseases reported.

NEW VIENNA, CLINTON COUNTY.

Population, 850.

Person making report, Dr. W. T. Matthews, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Fumigate with formaldehyde.

Disinfecting is done by me personally.

Four cases of scarlet fever were the only cases of infectious diseases reported.

NEW WATERFORD, COLUMBIANA COUNTY.

Population, 800.

Person making report, A. J. Hayes, health officer.

Board of Health spent \$82.44 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Upon inspection the sanitary conditions of our schoolhouse were found to be in good condition, but the playground a little damp.

Have no system for the collection or disposal of garbage.

Use Johnson's sulphur fumigators as a method for disinfecting houses after infectious diseases.

Have never been called upon to disinfect houses or rooms on account of consumption.

NEW WESTON, DARKE COUNTY.

Population, 318.

Person making report, Dr. A. Pearson, health officer. We have no Board of Health.

Except a little for postage there was nothing spent for health purposes.

There were no prosecutions for violations of health laws or orders of the health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Milk is purchased from neighbors; no dairies to inspect.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

What garbage is not disposed of by feeding to poultry I order buried sixty feet or more from any well of water.

For disinfecting houses after infectious diseases I have had no occasion as yet. Our village was not incorporated until last June, and I was appointed health officer July 19, 1904.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 3. Total number of infectious diseases, 5.

NEY, DEFIANCE COUNTY.

Population, 400.

Person making report, Dr. P. M. Lehman, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

We have no special way to dispose of the garbage.

Fumigate with sulphur is my method for disinfecting houses after infectious diseases.

In most cases the work of disinfecting is done by me personally.

Have had no call to disinfect houses or rooms on account of consumption.

Do not use a generator.

Twelve cases of measles were the only cases of infectious diseases reported.

NORTH AMHERST, LORAIN COUNTY.

Population, 1,765.

Person making report, Washington Foster, health officer.

Board of Health spent \$65 during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk by the board.

Sanitary conditions of our schoolhouses were inspected as required.

Have no system for the collection of garbage.

For the disposition of the garbage and refuse, council has rented farm property outside of the village for dumping same.

My method for disinfecting houses after infectious diseases is sulphur or formaldehyde.

The work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Use ten ounces formalin for a room 10x12x9 feet.

Would suggest the co-operation of village council as most important means of regulating and abating nuisances.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 2. Total number of infectious diseases reported, 4.

NORTH BALTIMORE, WOOD COUNTY.

Population, 3,600.

Person making report, Dr. J. W. Stoner, health officer.

Amount spent by the Board of Health during the year was \$230.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk. So many of our citizens keep a cow and sell milk to their neighbors that it is hardly practicable to do so.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Disposition of the garbage is made by dumping it into an excavation about half a mile from the inhabited portion of town.

Method for disinfecting houses after infectious diseases: In most cases I fumigate with sulphur. Have used formaldehyde in some of the better class of houses.

The sanitary officer does the work of disinfecting.

Have had no calls to disinfect houses or rooms on account of consumption. We urge it, however.

Generator used is Leininger's.

During the year the following cases of infectious diseases were reported: Diphtheria, 2; membranous croup, 2;

typhoid fever, 2; whooping cough, not reported. Total number of infectious diseases, 6.

NORTH LEWISBURG, CHAMPAIGN COUNTY.

Population, 900.

Person making report, G. L. Freeman, health officer.

During the year the Board of Health spent \$37.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

An inspection of the sanitary conditions of our schoolhouses was made as required.

We have no system for the collection of garbage.

The garbage is disposed of by requiring property owners to remove it to the dumping grounds provided for that purpose.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

On account of consumption I have been called upon three times to disinfect houses or rooms.

Dr. George Leininger's generator is used, and three ounces of formaldehyde for the ordinary sized room.

Total number of cases of infectious diseases reported were twelve cases of measles.

NORTH ROBINSON, CRAWFORD COUNTY.

Population, 160.

Person making report, James E. Morton, health officer.

The sanitary conditions of our schoolhouses were inspected.

NORWALK, HURON COUNTY.

Population, 8,000.

Person making report, Dr. E. Martin, health officer.

During the year the Board of Health spent \$381.55.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license is required to sell milk by the board.

Inspection of the dairy is made before giving the license.

Have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Disposition of the garbage is made by hauling it outside the corporation.

Method for disinfecting houses after infectious diseases: Formaldehyde vapor by the use of a Novy generator.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account consumption.

About one quart of formaldehyde is used to disinfect 1,000 cubic feet of air space.

Five cases of scarlet fever were the only cases of infectious diseases reported.

NORWOOD, HAMILTON COUNTY.

Population, 12,000.

Person making report, Dr. J. C. Cadwallader, health officer.

Amount spent by the Board of Health during the year was \$1,632.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

An inspection of the sanitary conditions of our schoolhouses was made.

City wagons collect the garbage twice a week during the summer months and once a week during the winter months.

The garbage is disposed of on city dump.

Formaldehyde fumes is my method for disinfecting houses or rooms on account of consumption.

The sanitary officer does the work of disinfecting.

To disinfect houses or rooms on account of consumption I have had no call.

During the year the following cases of infectious diseases were reported: Diphtheria, 4; scarlet fever, 40; typhoid fever, 5; whooping cough, 25; measles, 51. Total number of infectious diseases, 125.

NOTTINGHAM, CUYAHOGA COUNTY.

Population, 1,200.

Person making report, W. L. Stacey, Clerk of Board of Health.

Board of Health spent \$375 during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Use a formaldehyde generator.

Disinfecting is done by me personally.

During the past year I have never been called upon to disinfect houses or rooms on account of consumption.

Four cases of typhoid fever and three of measles were the only cases of infectious diseases reported.

OAK HILL, JACKSON COUNTY.

Population, 1,100.

Person making report, Wm. Jenkins, marshal and health officer.

During the year the Board of Health spent \$15.12.

There were no prosecutions for violations of health laws or orders of the Board of Health. Mayor will not enforce the laws.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection or disposal of the garbage. I have asked authorities to adopt some system, but so far they have refused to do anything.

Use solidified formaldehyde and sulphur as a method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used. Amount used is one-half to one ounce of solidified formaldehyde for a room 10x10x10 feet.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 34; typhoid fever, 4. Total number of infectious diseases, 39.

OAKLEY, HAMILTON COUNTY.

Population, 750.

Person making report, W. E. Seilkop, Secretary of Board of Health.

Ten dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required to sell milk by the board.

We have no system for the collection of garbage.

All parties are expected to dispose of their own garbage.

We use formaldehyde as a method for disinfecting houses after infectious diseases.

Sanitary Officer Wm. Reckman does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Following cases of infectious diseases were reported: Diphtheria, 1; membranous croup, 2; typhoid fever, 1. Total number of infectious diseases, 4.

OAKWOOD, PAULDING COUNTY.

Population, 375.

Person making report, Allen Bidlack, health officer.

Amount spent by the Board of Health during the year was \$7.40.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have bought or leased a place outside of the corporation where the garbage is disposed of. We bury some of it.

Have had no occasion to disinfect houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

One case of typhoid fever was the only case of infectious disease reported.

OBERLIN, LORAIN COUNTY.

Population, 40,083.

Person making report, E. M. Burge, health officer.

During the year the Board of Health spent \$166.33.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

No system is employed for the collection of garbage.

The garbage is disposed of by parties feeding it to hogs.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have had five calls to disinfect houses or rooms on account of consumption.

Generator used is Dr. Leininger's.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 2; typhoid fever, 3; measles, 27. Total number of infectious diseases, 34.

OLMSTED FALLS, CUYAHOGA COUNTY.

Population, 413.

Person making report, H. B. Northrop, health officer.

During the year the Board of Health spent \$25.

For violations of health laws or orders of the Board of Health there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Dispose of the garbage by requiring each individual to bury or burn the same.

For disinfecting houses after infectious diseases my method is washing and fumigation.

Disinfecting is sometimes done by me and sometimes by the occupant under my direction or under the supervision of the attending physician.

Have never been called upon to disinfect houses or rooms on account of consumption.

Have not used a generator this year.

No report was made of cases of infectious diseases.

ORANGEVILLE, TRUMBULL COUNTY.

Population, 400.

Person making report, Dr. R. R. Root, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Use formaldehyde.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

During the year the following cases of infectious diseases were reported: Scarlet fever, 2; measles, 14. Total number of infectious diseases, 16.

ORRVILLE, WAYNE COUNTY.

Population, 2,000.

Person making report, Dr. A. A. Brooks, health officer.

During the year the Board of Health spent \$110.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Collection of garbage is made by a swill wagon, box water tight.

The dispositions of the garbage is made by feeding to hogs and burying.

We use solidified formaldehyde, keeping room tightly closed for eight hours as a method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

During the last year I have been called upon twice to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used, and one-half ounce solidified formaldehyde to 1,000 cubic feet of air space.

Following cases of infectious diseases were reported during the year: Diphtheria, 1; typhoid fever, 12. Total number of infectious diseases, 13.

OSBORN, GREENE COUNTY.

Population, 998.

Person making report, Ora Beakler, health officer.

Amount spent by the Board of Health during the year was \$60.

For violations of health laws or orders of the Board of Health no prosecutions were had.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection is not made of the dairy before giving the license.

Our schoolhouses were inspected and the sanitary conditions were found to be in a good condition.

We have no system for the collection of garbage.

No disposition is made of the garbage.

We have no method for disinfecting houses after infectious diseases.

The attending physician does the work of disinfecting.

We have no generator.

One case of scarlet fever and one of typhoid fever were the only cases of infectious diseases reported.

OSNABURG, STARK COUNTY.

Population, 560.

Person making report, B. F. Criswell, health officer.

Board of Health spent \$85 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

The garbage is disposed of by hauling it away.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Do not remember the name of the generator used.

Total number of infectious diseases reported during the year, 19.

OSTRANDER, DELAWARE
COUNTY.

Population (Census of 1900), 401.

Person making report, Dr. G. E. Cowles, health officer.

During the year the Board of Health spent \$23.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Garbage is disposed of on a dump outside of the corporate limits.

Fumigate with sulphur is my method for disinfecting houses after infectious diseases.

I do the work of disinfecting myself. Had only one occasion where disinfection was required and this was my patient.

Have never been called upon to disinfect houses or rooms on account of consumption.

Would suggest deeper interest and greater determination on the part of members of the board to enforce the law.

One case of scarlet fever and three of measles were the only cases of infectious diseases reported.

OTTAWA, PUTNAM COUNTY.

Population, 2,500.

Person making report, Dr. Frank Light, health officer.

During the year the Board of Health spent \$200.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the dairy before giving the license has been ordered.

We have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

Each individual is required to dispose of his own and take it to dump grounds and either burn or bury whatever is noxious.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The West Sanitary Generator No. 2 is used and six ounces of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 4; other infectious diseases, 1. Total number of infectious diseases, 5.

OTTOVILLE, PUTNAM COUNTY.

Population, 200.

Person making report, Dr. J. F. Ockuly, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to re-

ceive house drainage, or drainage from privies or water closets.

We have no dairies.

Have inspected the sanitary conditions of our schoolhouses.

Everybody takes care of their own garbage.

Garbage is disposed of by burning it.

I use formaldehyde as a method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have been called upon three times.

Generator used is one we had made.

During the year the following cases of infectious diseases were reported: Scarlet fever, 4; typhoid fever, 2; measles, 27. Total number of infectious diseases, 33.

OXFORD, BUTLER COUNTY.

Population, 2,300.

Person making report, W. E. Calohan, health officer.

Amount spent by the Board of Health during the year was \$175.

For violations of health laws or orders of the Board of Health there were no prosecutions had.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

We have inspected the sanitary conditions of our schoolhouses and found them to be the best. We have the Smead system of heating and ventilating and have a Smead closet for burning the contents of the vaults; also a Clark system of urinal stalls with water flowing through it at all times which comes from four drinking fountains. They do not use cups but drink the water as it flows up from the fountain.

Garbage is collected in barrels and hauled away twice a week.

Disposition of the garbage is made on a dump outside of town.

Method for disinfecting houses after infectious diseases: We use formaldehyde by generating. We have a Novy generator.

The work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Novy generator is used and about five ounces to a room 12 feet square. I mix five ounces of glycerine to every five ounces of formaldehyde.

Six cases of infectious diseases were reported during the year, as follows: Scarlet fever, 2; typhoid fever, 4.

PAINESVILLE, LAKE COUNTY.

Population, 6,000.

Person making report, S. A. Haskell, health officer.

Board of Health spent \$306.42 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

So far as known there are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License is required to sell milk by the board.

No inspection is made of the dairy before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

The collection of garbage is made by private parties.

Some of the garbage is used by farmer for swill; some of it is taken to the public dumping ground.

We use a formaldehyde lamp with solidified formaldehyde as a method for disinfecting houses after infectious diseases.

Work of disinfecting is sometimes done by the health officer and sometimes by the family.

Not in the past year have I been called upon to disinfect houses or rooms on account of consumption.

We use Leininger's large size lamp and Leininger's solidified formaldehyde, one large or heaping teaspoonful.

Total number of infectious diseases, 74: Scarlet fever, 10; typhoid fever, 11; measles, 53.

PEMBERVILLE, WOOD COUNTY.

Population, 1,200.

Person making report, A. A. Zurdler, Clerk of Board of Health.

Amount spent by the Board of Health during the year was \$65.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected and found to be in good condition.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

The health officer does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used and one ounce of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 6. Total number of infectious diseases, 6. Health officer failed to report the cases of typhoid fever.

PERRYSBURG, WOOD COUNTY.

Population, 1,780.

Person making report, James H. Hayes, health officer.

Sixty dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, no prosecutions were had.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Disposition of the garbage is made by hauling it away or burning it on the premises, each property owner taking care of his own.

We use formaldehyde gas and sulphur as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

During the year I have been called upon four times to disinfect houses on account of consumption.

One case of diphtheria and one of typhoid fever were the only cases of infectious diseases reported.

PIONEER, WILLIAMS COUNTY.

Population, 603.

Person making report, A. F. Norris, health officer.

Amount spent by the Board of Health during the year, \$16.75.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Milk is sold only by families who keep one or two cows. No license is required.

Have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Garbage is put on manure heaps and is used as a fertilizer.

Fumigation with formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by H. D. Elder, appointed by the board for that purpose.

Have not been called upon to disinfect houses or rooms on account of consumption.

The Lentz generator is used and eight ounces of the 40 per cent. formaldehyde and two ounces of glycerine to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1; scarlet fever, 2; measles, 100. Total number of infectious diseases, 104.

PIQUA, MIAMI COUNTY.

Population, 13,000.

Person making report, Dr. F. E. Kitzmiller, health officer.

During the year the Board of Health spent \$4,800.

For violations of health laws or orders of the Board of Health, there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk.

We generally do inspect the dairy before giving the license.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage. Garbage is removed by parties for profit as hog food. Night soil is often taken out on farms or buried.

Formaldehyde gas and lots of it is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Only a few times have I been called

upon to disinfect houses or rooms on account of consumption.

West disinfecting generator is used; also use 40 per cent. solution of formaldehyde by spraying upon sheets and evaporating.

Cases of infectious diseases reported: Smallpox, 40; diphtheria, 3; scarlet fever, 4; typhoid fever, 15; whooping cough, 50; measles, 40; other infectious diseases, 50. Total number of infectious diseases 202.

PLAIN CITY, MADISON COUNTY.

Population, 1,800.

Person making report, John W. Latham, health officer.

Amount spent by the Board of Health during the year was \$75.

An inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Physicians do the work of disinfecting.

Total number of cases of infectious diseases was one case of whooping cough.

PLAINFIELD, COSHOCTON COUNTY.

Population, 210.

Person making report, James Magness, health officer.

One dollar was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were not inspected.

Every citizen disposes of his own garbage.

I do not know the method used for disinfecting houses after infectious diseases as I leave it to the physicians.

Physicians do the work of disinfecting.

Only once have I been called upon to disinfect houses or rooms on account of consumption.

PLEASANT RIDGE, HAMILTON COUNTY.

Population, about 1,200.

Person making report, C. W. Acomb, health officer (in lieu of Board of Health).

During the year the Board of Health spent \$100.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not known to be used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected as required.

We do not have any system of removing garbage except through the street commissioner, who devotes all his time in caring for the streets and keeping them clean of all kinds of refuse. Property owners take that which they do not destroy on premises to dump, and it is there burned by this official. In this way we have been able to dispose of this important question, yet it is not what we would wish, but the best we can do at present.

Method for disinfecting houses after infectious diseases: I have always used brimstone in disinfecting, and if patient has occupied more than one room, I invite inmates to a part of the house not infected and fumigate the other portion by closing all openings.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

PLEASANTVILLE, FAIRFIELD COUNTY.

Population, 500.

Person making report, M. B. McCleery, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

Have no system for the collection of garbage.

PLYMOUTH, RICHLAND AND HURON COUNTIES.

Population, about 1,170.

Person making report, Dr. George J. Searle, health officer.

Possibly a few cents for postage was all that was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Am not aware of any abandoned wells being used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses, privy vaults, grounds, etc., was made.

Each person collects his own garbage.

Disposition of the garbage is made by burning it.

Method for disinfecting houses after infectious diseases: We have had no occasion to disinfect houses for the

past three years. My choice would be formaldehyde steam with a little glycerine added.

Disinfecting has not been required.

Have not been called upon to disinfect houses or rooms on account of consumption.

We have never used a generator.

All rules laid down by the State Board of Health are sufficient if followed. In addition I would suggest that if the State Board of Health had the authority to name the compensation that the health officer should receive, pro rata, the town to provide the necessary equipment, the work would be more effective.

Total number of cases of infectious diseases reported were two cases of typhoid fever.

POLAND, MAHONING COUNTY.

Population, 400.

Person making report, Dr. C. R. Justice.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

No inspection was made of the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Have not had occasion to disinfect houses after infectious diseases.

To disinfect houses on account of consumption I have had no calls.

No cases of infectious diseases reported.

POMEROY, MEIGS COUNTY.

Population, 4,800.

Person making report, Dr. J. A. Miller, health officer.

About \$200 was the amount spent by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

In the business section and main resident section the garbage man collects it twice a week. He is paid by the citizens from whom he takes the garbage.

Have a garbage dump for the disposal of same.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done under my direction.

Occasionally I have been called upon to disinfect houses or rooms on account of consumption.

Use the formaldehyde candles on saucers.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 16; measles, 50. Total number of infectious diseases, 67.

PORT JEFFERSON, SHELBY CO'TY.

Population, 400.

Person making report, D. J. Cargill, V. S.

Ten dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

There were no cases of infectious diseases reported.

PORTSMOUTH, SCIOTO COUNTY.

Population, 22,000.

Person making report, John W. Berndt, Clerk of Board of Health.

Amount spent by the Board of Health during the year, \$2,493.70.

For violations of health laws or orders of the Board of Health there was one prosecution—for keeping hogs within 100 feet of dwelling or place of business. Party found guilty in Mayor's Court and fined \$1.00 and costs. Case was carried to Common Pleas Court, and the verdict was sustained.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk.

All dairies are inspected annually.

Have inspected the sanitary conditions of our schoolhouses.

For the collection of garbage city council awards contracts for each ward.

The garbage is disposed of by dumping over bank.

Use formaldehyde generators is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

Was called upon to disinfect six rooms on account of consumption.

Generator manufactured by the West Disinfecting Co., Chicago, Ill., is used, and about a pound of formaldehyde to an ordinary sized room.

During the year the following cases of infectious diseases were reported: Smallpox, 4; diphtheria, 11; membranous croup, 3; scarlet fever, 72. Total number of infectious diseases, 90. Typhoid fever, whooping cough, measles and other infectious diseases not reported.

PORT WILLIAM, CLINTON COUNTY.

Population, 325.

Person making report, S. L. Thorp.

Nothing was expended by the Board of Health during the year.

No endeavor is made to enforce health laws or orders of the Board of Health as they ought to be.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets. We have no drainage at all.

No license is required to sell milk by the board.

There are no dairies here.

Everyone cares for the collection and disposal of his own garbage.

Physicians do the work of disinfecting.

Have no generator.

PROSPECT, MARION COUNTY.

Population, 1,100.

Person making report, G. F. Gast, health officer.

Amount spent by the Board of Health during the year, \$232.77.

Board does not require a license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in very good condition.

We have no system for the collection of garbage.

Method for disinfecting houses after infectious diseases: Use formaldehyde and bi-chloride solution.

The work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 9; typhoid fever, 1; measles, 3; other infectious diseases, 10. Total number of infectious diseases, 23.

PUT-IN-BAY, OTTAWA COUNTY.

Population, 250.

Person making report, Adam Heidle, health officer.

Board of Health spent nothing during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Schoolhouses are outside the corporate limits; no inspection made.

Have no system for the collection of garbage.

Disposition of the garbage is made by carting away and placing on farms, etc.

The work of disinfecting is looked after by our physicians.

One case of scarlet fever was the only case of infectious diseases reported.

QUAKER CITY, GUERNSEY COUNTY.

Population, 950.

Person making report, W. W. Dowdell, health officer.

Board of Health spent \$135 during the year.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

An inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

No system is employed for the collection of garbage.

Disposition of the garbage is made by hauling it outside of the corporation and dumping it in some field wherever we can get permission.

Method for disinfecting houses after infectious diseases: We disinfect by burning sulphur.

Disinfecting is done by the occupants of the house under the direction of the health officer.

Have never been called upon to disinfect houses or rooms on account of consumption.

Following cases of infectious diseases were reported during the year: Scarlet fever, 6; typhoid fever, 2; measles, 25. Total number of infectious diseases, 33.

QUINCY, LOGAN COUNTY.

Population, 800.

Person making report, G. B. Plummer, health officer.

Amount spent by the Board of Health during the year was: Health officer, \$12.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses and found they were in good condition.

We have no system for the collection of garbage.

The garbage is disposed of by throwing it in low and hollow places.

Method for disinfecting houses after infectious diseases: Clean thoroughly and use carbolic acid.

Disinfecting is done by the occupants.

Have never been called upon to disinfect houses on account of consumption.

Have no generator.

I suggest that the Board of Health meet once every two or three months. I think it would be of benefit to the town and also to the Board of Health. The Board of Health here only met twice in the year of 1904.

Cases of infectious diseases reported: Smallpox, 1; whooping cough, 6; measles, 3. Total number of infectious diseases, 9.

RACINE, MEIGS COUNTY.

Population, 600.

Person making report, Elwood Davis, health officer.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets, but what are properly filled up.

No license is required to sell milk. There are no milk peddlers here.

Have inspected the sanitary conditions of our schoolhouses.

Persons owning property or renters are compelled to collect and dispose of the garbage. Some burn or bury it.

At this time we have no method for disinfecting houses after infectious diseases. During the year we have had no cases of infectious diseases.

Work of disinfecting will be done by me, should the occasion present itself.

Have had no calls to disinfect houses or rooms on account of consumption.

RARDEN, SCIOTO COUNTY.

Population, 443.

Person making report, William Winkle, health officer.

Since September the Board of Health spent \$3.25.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

The garbage is disposed of by usually taking outside of corporation.

Fumigate with formaldehyde is my

method for disinfecting houses after infectious diseases.

In one case I trusted the parents of the patient to do the disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

I use Rexine formaldehyde compound manufactured by Rex Fluid Co., Des Moines, Iowa.

RAVENNA, PORTAGE COUNTY.

Population, 4,500.

Person making report, M. G. McBride, Secretary of Board of Health.

Amount spent by the Board of Health during the year was \$400.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected and carried away in covered barrels and tanks, and is disposed of by burying or burning.

Fumigate with formaldehyde and sulphur is our method for disinfecting houses after infectious diseases.

Health officer does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Usually we use candles.

The following cases of infectious diseases reported: Diphtheria, 4; scarlet fever, 2; whooping cough, 40; measles, 210. Total number of infectious diseases, 256.

RAWSON, HANCOCK COUNTY.

Population, 550.

Person making report, Mike Smith, health officer.

Five dollars was the amount spent

by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets. Most are drilled wells.

A license to sell milk is not required by the board.

Dairies are not licensed.

Inspection of the sanitary conditions of our schoolhouses was made.

About three times a year we clean up the garbage and haul it out on a farm.

Have no method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have had three calls to disinfect houses or rooms on account of consumption.

I do not know the name of generator used.

READING, HAMILTON COUNTY.

Population, 3,500.

Person making report, George Siebel, health officer.

Board of Health spent \$235, including salary, during the year.

Had one conviction for violation of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

The board sees to it that the sanitary conditions of our schoolhouses are inspected twice a year.

The village employs a man to collect the garbage every week.

Garbage is disposed of on the outskirts of the village.

We use the West disinfecting generator and formaldehyde in liquid form as a method for disinfecting houses after infectious diseases.

The health officer does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

We use the West generator.

Seventeen cases of whooping cough were the only cases of infectious diseases reported.

REPUBLIC, SENECA COUNTY.

Population, 580.

Person making report, Dr. C. E. Womer, health officer.

Thirty dollars were spent during the year by the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

We have no dairies.

Have inspected the sanitary conditions of our schoolhouses.

Garbage is usually disposed of by burning by owners.

As yet we have had no occasion to disinfect houses after infectious diseases.

REYNOLDSBURG, FRANKLIN COUNTY.

Person making report, B. F. Oram, health officer.

Amount spent by the Board of Health during the year, \$24.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Had no call to disinfect houses or rooms on account of consumption.

RICHMOND, JEFFERSON COUNTY.

Population, 500.

Person making report, Dr. S. Rothacker, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected and were found in good condition.

We have no special system for the collection of garbage. All property holders are required to keep their premises clean.

Disposition of the garbage is made by hauling it away.

Method for disinfecting houses after infectious diseases: Have always disinfected by burning sulphur.

When I attend the family I do the work of disinfecting myself. In other cases I order the attending physician to do it.

Have not been called upon to disinfect houses or rooms on account of consumption. Have not had a case of consumption in eight years.

We have never used a generator.

RIDGEWAY, HARDIN COUNTY.

Population, 500.

Person making report, Dr. E. B. Crow, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

Collection of garbage is part of the street commissioner's duties.

What garbage cannot be used for fertilizing purposes is either burned or buried.

Have had no occasion to disinfect houses after infectious diseases, as we have had no infectious or contagious diseases during the past year.

Would suggest that all local boards be abolished and health officers substituted.

RISING SUN, WOOD COUNTY.

Population, 700.

Person making report, M. C. Mowen, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The dairy is not inspected before giving the license.

The sanitary conditions of our schoolhouse were inspected.

Garbage is collected with a team.

Disposition of the garbage is made on dumping ground by burying it, two miles away.

Method for disinfecting houses after infectious diseases: Sulphur, carbolic acid, formaldehyde.

Myself and a physician do the work of disinfecting.

Total number of infectious diseases, 3, as follows: Diphtheria, 1; typhoid fever, 2.

ROCKPORT, CUYAHOGA COUNTY.

Population, 2,400, estimated.

Person making report, Dr. Chas. L. Wood, health officer.

Amount spent by the Board of Health during the year was \$250.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

Formaldehyde by generator and spray is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

To disinfect houses on account of consumption I have never been called upon.

Leininger's generator is used. Use approximately one ounce of solidified formaldehyde to 3,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 10; measles, 40. Total number of infectious diseases, 50.

ROCKY RIDGE, OTTAWA COUNTY.

Population, 475.

Person making report, John Kremke, health officer.

Board of Health spent nothing during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

No disposition is made of the garbage.

Fumigation with sulphur is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the Board of Health.

Had no calls to disinfect houses or rooms on account of consumption.

We do not use a generator.

There were no cases of infectious diseases reported.

ROCKY RIVER, CUYAHOGA COUNTY.

Population, 1,450.

Person making report, Dr. K. K. Hastings, health officer.

Board of Health spent \$125 during the year.

There were no prosecutions for violations of health laws or orders of the Board of health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses were made.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Formaldehyde fumigation with temperature of 70 or higher. Destroy any articles that have been used on patient's bed that cannot be thoroughly disinfected.

Work of disinfecting is done by me personally.

Have been called upon twice to disinfect houses or rooms on account of consumption.

Park, Davis & Co.'s generator is used, and one-half pound of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 11; measles, 4; other infectious diseases, 1. Total number of infectious diseases, 16.

ROSEVILLE, MUSKINGUM COUNTY.

Population, 1,500.

Person making report, T. C. Hilliard, health officer.

During the year the Board of Health spent \$26.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

In April and September the sanitary conditions of our schoolhouses are inspected.

Collection of garbage is made by garbage box.

Garbage is disposed of by hauling to dumping ground.

Use formaldehyde and Dr. George Leininger's generator is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have been called upon three times to disinfect houses or rooms on account of consumption.

Do not know amount of formaldehyde used or the number of cubic feet of air space.

ROSSVILLE, DARKE COUNTY.

Population, 315.

Person making report, D. H. Brown, health officer.

Two dollars was the amount spent by the Board of Health during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

No inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

Dr. J. M. DeTord does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Two cases of measles were the only cases of infectious diseases reported.

RUSHVILLE, FAIRFIELD COUNTY.

Population, 400.

Person making report, Dr. W. C. Lewis, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets. I would not allow such a procedure under any circumstances.

The board does not require a license to sell milk.

Milk is furnished by private families who keep cows.

Don't allow very much garbage to accumulate.

The garbage is disposed of by hauling it away and burning it.

Fumigate with sulphur, also use copperas and carbolic acid, also formaldehyde is my method for disinfecting houses after infectious diseases.

I always attend to the disinfecting myself.

Have had no cases of consumption here since I have been health officer.

If it were necessary we would use Dr. George Leininger's generator. Do you know a better one? I am anxious to get hold of one that will do the work perfectly.

One very mild case of scarlet fever was the only case of infectious diseases reported.

RUSHSVLVANIA, LOGAN COUNTY.

Population, 600.

Person making report, W. H. Drumm, health officer.

Board of Health spent \$112 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses.

Garbage is collected in barrels.

The garbage is disposed of by burying it.

Method for disinfecting houses after infectious diseases: Formaldehyde; we use from eight to twelve ounces of formalin, 40 per cent. solution.

Disinfecting is done by a deputy.

Had one call to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported were twelve cases of smallpox.

ST. BERNARD, HAMILTON COUNTY.

Population, 3,500.

Person making report, Dr. C. C. Tope, health officer.

Amount spent by the Board of Health during the year was \$275.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We inspect dairies but no license is issued.

Inspection of the sanitary conditions of our schoolhouses was made.

Garbage wagons make collection of garbage twice a week.

Disposition of the garbage is at the village dump.

Method for disinfecting houses after infectious diseases: Formalin disinfection.

Sanitary officer does the work of disinfecting.

To disinfect houses or rooms on account of consumption I have had no call.

The fumigation is done by J. & J. candle fumigators.

Cases of infectious diseases reported: Typhoid fever, 1; measles, 3. Total number of infectious diseases, 4.

ST. CLAIRSVILLE, BELMONT COUNTY.

Population, 1,210.

Person making report, Dr. S. L. West, health officer.

Board of Health spent \$35 during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Garbage is disposed of by carting it away in barrels.

My method for disinfecting houses after infectious diseases is to use formaldehyde (solidified), scrubbing the floors and woodwork with a solution of bi-chloride of hydrogen, then wipe the walls down with same solution.

Fumigation is done by me personally; scrubbing by inmates of the house.

Have not been called upon to disinfect houses or rooms on account of consumption.

Leininger's (Chicago) generator is used and four ounces of formaldehyde to 1,000 cubic feet of air space.

Would suggest that it would be quite an amount of assistance here if physicians could be induced to report their cases.

No cases of infectious diseases were reported during the year.

ST. JOHNS, AUGLAIZE COUNTY.

Population, 350.

Person making report, C. M. Metz, health officer.

During the year ending 1904, \$95 was the amount expended by the Board of Health.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Sanitary conditions of our school-houses were inspected.

We have no system for the collection of garbage.

The garbage is disposed of by hauling it out of town.

Use sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

Dr. Ehrnsberger does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

One case of membranous croup was the only case of infectious diseases reported.

ST. LOUISVILLE, LICKING COUNTY.

Population, 400.

Person making report, Dr. L. L. Mariote, health officer.

Thirty dollars was the amount spent by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

Burn sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disin-

fect houses or rooms on account of consumption.

Four cases of diphtheria were the total number of cases of infectious diseases reported.

ST. MARYS, AUGLAIZE COUNTY.

Population, 6,500.

Person making report, Dr. I. E. Williams, health officer.

During the year the Board of Health spent \$1,000.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Garbage is disposed of by hauling it to the woods near town leased for that purpose.

Method for disinfecting houses after infectious diseases: Use Lister's fumigators; one ounce solid formaldehyde to each 1,000 cubic feet of air space beside washing and scrubbing with hot water.

Work of disinfecting is done by me personally, and the washing and scrubbing by the occupants.

To disinfect houses or rooms on account of consumption I have been called upon twice.

Lister's fumigators are used and one ounce to 1,000 cubic feet of air space.

I think there should be a county health officer.

Cases of infectious diseases reported: Smallpox, 7; diphtheria, 3; scarlet fever, 37. Total number of infectious diseases, 47.

ST. PARIS, CHAMPAIGN COUNTY.

Population, 1,400.

Person making report, Dr. C. A. Ofenbacher, health officer.

Fifty-five dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Street commissioner disposes of the garbage by hauling it away.

My method for disinfecting houses after infectious diseases is formaldehyde fumigation.

The work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Generator used is Dr. George Leininger's. Two ounces of formaldehyde (dry) to 1,000 cubic feet of air space are used.

Total number of cases of infectious diseases was one case of membranous croup.

Board requires no license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

SALEM, COLUMBIANA COUNTY.

Population, 8,000.

Person making report, Dr. E. J. Schwartz, health officer.

During the year the Board of Health spent \$999.41.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

The dairy is inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Farmers and hog raisers make contracts with the people to collect and dispose of the garbage. Work is not done satisfactorily, as it is a matter hard to regulate. They should be made to use air-tight tanks the same as collectors of night soil use.

We use a formaldehyde generator. close the room and all cracks carefully and allow gas to remain from four to six hours as a method for disinfecting houses after infectious diseases.

Work of disinfecting is done by the sanitary officer.

Have been called upon twice to disinfect houses or rooms on account of consumption.

SABINA, CLINTON COUNTY.

Population, 1,800.

Person making report, S. B. Lightner, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

We use Dr. Leininger's formaldehyde generator and one ounce of solidified formaldehyde to 1,000 cubic feet of air space.

Would suggest first, giving small fee to members of health board; second, make all salaries compensate so best of service can be obtained; third, have more of them attend the State Board of Health meetings.

Cases of infectious diseases reported: Diphtheria, 4; scarlet fever, 5; typhoid fever, 22; measles, 3. Total number of infectious diseases, 34.

SALESVILLE, GUERNSEY COUNTY.

Population, 232.

Person making report, Wm. T. Carpenter, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses.

For the collection of garbage, notice is given to the citizens.

Disposition of the garbage is made by hauling it away.

Use wood alcohol and sulphur, close all doors and windows and let the fumes go through the clothing; also use carbolic acid (from which good results have come) is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

No formaldehyde used.

Cases of infectious diseases reported: Smallpox, 11; whooping cough, 10; measles, 10. Total number of infectious diseases, 31.

SALINEVILLE, COLUMBIANA COUNTY.

Population, 3,000.

Person making report, Dr. H. M. Calvin, health officer.

Health officer's salary, \$100 was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Dairymen are not required to have a license.

Have inspected the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

Disposition of the garbage is made by having each person burn it. Waste from the hotels is hauled to the country and fed to hogs. The sewers (what there are of them) run into a branch of Yellow Creek. I make the butchers slaughter outside of the village.

Method for disinfecting houses after infectious diseases: I have a formaldehyde generator that I use (Dr. F. G. Novy's) for fumigating each room. I also use sulphur in the room the patient was in. I use sulphur and chlorinated lime in the cellar. I have the patient bathed in a solution of bichloride and permanganate of potash.

Disinfecting is done by the sanitary officer, but I oversee the job and remain with him until completed.

During the last year I have been called upon twice to disinfect houses or rooms on account of consumption.

Dr. F. G. Novy's generator is used. I use the generator one hour through keyhole or bore a hole in sash. If not satisfied then I use sulphur and keep the room closed twelve or eighteen hours. Use from one to one and one-half pints of formaldehyde to a room 12 feet high and 14 by 12 feet wide.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1; membranous croup, 2; typhoid fever, 4. Total number of infectious diseases, 8.

SANDUSKY, ERIE COUNTY.

Population, 22,000.

Person making report, Dr. W. H. Busch, health officer.

Amount spent by the Board of Health during the year, \$4,059.75.

Never had to prosecute anyone for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Most of the garbage is collected and disposed of by farmers near the city.

Formaldehyde as employed for fumigation is my method for disinfecting houses after infectious diseases.

Sanitary Officer John McDermott does the work of disinfecting.

Do not remember being called upon to disinfect houses or rooms on account of consumption.

Seven ounces of the 40 per cent. solution of formaldehyde are used and the Primus cooking and heating apparatus (New York).

Following cases of infectious diseases were reported during the year: Smallpox, 26; diphtheria, 13; membranous croup, 3; scarlet fever, 3; typhoid fever, 29; other infectious diseases (chicken pox), 4. Total number of infectious diseases, 78.

SAVANNAH, ASHLAND COUNTY.

Population, 400.

T. H. Steinbring, health officer.

No report made.

SCIO, HARRISON COUNTY.

Population, 1,350.

Person making report, Dr. G. D. Custer, health officer.

Amount spent by the Board of Health during the year was \$52.04.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

A collector is employed to collect the garbage.

The garbage is disposed of on a garbage lot.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Sanitary marshal under my instruction does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Leininger's fumigator for formaldehyde is used.

Cases of infectious diseases reported: Whooping cough, 7; measles, 30; other infectious diseases, 16. Total number of infectious diseases, 53.

SEBRING, MAHONING COUNTY.

Population, 1,800.

Person making report, Frank Chisler, health officer.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Collection of garbage is made by wagons.

Use sulphur as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

Following cases of infectious diseases were reported: Typhoid fever, 4; whooping cough, 10; measles, 12; other infectious diseases (malaria), 5. Total number of infectious diseases, 31.

SENECAVILLE, GUERNSEY COUNTY.

Population, 700.

Person making report, Frank Morrison, health officer.

About \$12 was the amount spent by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

Have inspected the sanitary conditions of our schoolhouses.

Corporation cares for the collection of the garbage and is disposed of by hauling it away.

My method for disinfecting houses after infectious diseases is to use sulphur.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Three cases of smallpox and three of typhoid fever were the only cases of infectious diseases reported.

SHAWNEE, PERRY COUNTY.

Population, 3,000.

Person making report, Emerson Peart, health officer.

During the year the Board of Health spent \$149.75.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses and found them to be very fair.

No general system is employed for the collection of garbage.

Disposition of the garbage is made by hauling it away and either burning or burying it.

Use formaldehyde for forty-eight hours is my method for disinfecting houses after infectious diseases.

The attending physician does the work of disinfecting.

Have been called upon once to disinfect houses or rooms on account of consumption.

Generator used is manufactured by the Eli Lilly Co., Indianapolis, Ind. The old board lost record of the number of cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 5; typhoid fever, 5; measles, 1. Total number of infectious diseases, 11.

SHELBY, RICHLAND COUNTY.

Population, 4,700.

Person making report, Dr. A. C. Taylor, health officer.

During the year the Board of Health spent \$248.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

No inspection of the sanitary conditions of our schoolhouses was made.

For the collection of garbage each individual pays 25 cents a month to a person who hauls it away each week.

Vegetable refuse is fed to hogs. Other garbage is disposed of on a dump outside of the corporation set aside for such purpose.

Use formaldehyde in generator is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

During the year I have been called upon four times to disinfect houses or rooms on account of consumption.

George Leininger's generator is used. I have used one-fourth ounce of solidified formaldehyde to an ordinary room and used generator one-half hour.

Following cases of infectious diseases were reported: Smallpox, 3; diphtheria, 11; membranous croup, 4; scarlet fever, 2; typhoid fever, 30; whooping cough, 3; measles, 8; other infectious diseases, 12. Total number of infectious diseases, 23.

SHRODSVILLE, CARROLL COUNTY.

Population, 1,500.

Person making report, Dr. J. D. Aldridge, health officer.

Sixty dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

To receive house drainage, or drainage from privies or water closets abandoned wells are not used.

License to sell milk is required by the board.

No license is issued to dairymen.

Sanitary conditions of our schoolhouses were inspected.

For the collection of garbage council directs street commissioner to

haul it out of town and dispose of it by burning.

Follow rules laid down by the State Board of Health is my method of disinfecting houses after infectious diseases.

Myself or the sanitary officer does the work of disinfecting.

Last year I had no calls to disinfect houses or rooms on account of consumption.

Lister's fumigator is used, J. & J's.

During the year the following cases of infectious diseases were reported: Diphtheria, 76; membranous croup, 2; typhoid fever, 18. Total number of infectious diseases, 94.

SHREVE, WAYNE COUNTY.

Population, 1,130.

Person making report, John R. Butler, health officer.

Except health officer's salary nothing was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health, no prosecutions were had.

There are some abandoned wells, also some cesspools, without cement, used to receive house drainage, or drainage from privies or water closets.

No action has been taken to stop the practice.

Board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made. The school building and outbuildings were found to be in fair sanitary condition.

No system is employed for the collection of garbage.

Each person disposes of the garbage to suit himself.

Disinfecting is done by the city marshal.

Total number of cases of infectious diseases reported was one case of typhoid fever and two of whooping cough.

SIDNEY, SHELBY COUNTY.

Population, 6,000.

Person making report, Wm. C. Wyman, health officer.

During the year the Board of Health spent \$1,817.68, \$25 of which amount was placed on the tax duplicate.

For violations of health laws or orders of the Board of Health, the following prosecution was had: Elijah Shelby (colored), broke quarantine May 8, 1904; returned to Sidney with smallpox; taken to pesthouse on June 9, 1904; arrested, and pleaded guilty. He was fined \$50 and ninety days in workhouse. The costs are to be worked out at Xenia, Ohio, at 60 cents per day.

I do not know of any abandoned well being used to receive house drainage, or drainage from privies or water closets.

Board requires a license to sell milk, also meat. Fifty cents is charge for the license. I collected \$39.50 for licenses.

The dairy is inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made. All schools are in first-class sanitary condition. Dr. D. R. Silver was appointed school examiner at a salary of \$150 per annum, of which sum the Board of Education pays \$100.

No system is employed for the collection of garbage. We have a dump for garbage, but those who are employed make a dump in other places, and it is hard to control. Night soil is taken out on farm land and buried.

The garbage is disposed of by burning all that is dry. Old cans and such are dumped in low places and covered up.

Was called upon to disinfect a house after a case of smallpox. The house was quarantined after removal of the patient to the new pesthouse, fumigated and all contents ordered burned. The building was declared a public nuisance and I had it destroyed at the expense only of destruction.

The sanitary officer does all disinfecting and sometimes has an assistant.

To disinfect houses or rooms on account of consumption I was not called upon during the year. Parties did it themselves.

We use the Novy and also Dr. Geo. Leininger's generator. One pint in small 10x12 rooms, one quart to half a gallon in some houses of the 40 per cent. solution. I take my instructions from Dr. Carl L. Barnes' book, and from Dr. Charles V. Chapin's work.

Would suggest as we now have good sewerage in Sidney, if only the people would make connection without being forced by law, it would relieve the city of many of the nuisances, such as privy vaults, which keep the sanitary officer and health officer employed all the year giving notice and issuing permits for cleaning, of which 104 were cleaned. One sink was cleaned and filled at the expense of the city at a cost of \$25, which was placed on the tax duplicate, and parties were forced to connect with the sewer at their own expense.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 8; membranous croup, 1; scarlet fever, 16. Total number of infectious diseases, 30. Whooping cough and measles not reported.

SMITHVILLE, WAYNE COUNTY.

Population, 500.

Person making report, W. G. Zimmerman, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

No inspection is made of the sanitary conditions of our schoolhouse. It is a township school.

We have no system for the collection of garbage.

The work of disinfecting is done by me personally.

Novy formaldehyde generator is used, and from eight to ten fluid ounces of formaldehyde to 1,000 cubic feet of air space.

One case of scarlet fever was the only case of infectious diseases reported.

SOMERSET, PERRY COUNTY.

Population, 1,100.

Person making report, Dr. Michael Clouse, health officer.

Nothing was spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Sanitary conditions of our school-houses were inspected.

We have no system for the collection of garbage.

Fumigate with formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by the clerk of the board under my supervision.

To disinfect houses or rooms on account of consumption I have had one call.

The Rexine formaldehyde compound system is used. Amount of formaldehyde used is eight ounces to 1,000 cubic feet of air space.

I would suggest that our local board be instructed to establish a system for the collection of garbage, also that the State Board of Health insist on the same.

During the year the following cases of infectious diseases were reported: Typhoid fever, 3; measles, 7. Total number of infectious diseases, 10.

SOMERVILLE, BUTLER COUNTY.

Population, 375.

Person making report, Frank Chapen, health officer.

Board of Health spent \$26 during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had. There were sixteen notices served to abate nuisances and four to build new privy vaults.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our school-houses were inspected and found to be in good condition with good light and plenty of ventilation.

No system is employed for the collection of garbage.

When the garbage accumulates I order the property owner to remove and dispose of same.

Had no occasion to disinfect houses after infectious diseases, having no cases.

When disinfecting is required physicians do the work.

SOUTH BROOKLYN, CUYAHOGA COUNTY.

Population, 3,500.

Person making report, Julius Reaker, health officer.

Amount spent by the Board of Health during the year, \$140.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from

privies or water closets. We have a sewerage system on all streets.

A license to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected and found to be in good condition—cannot be beaten.

We have no system for the collection of garbage.

The garbage is disposed of by burning and burying it and some of it farmers haul away and feed to their hogs.

Use formaldehyde generator is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Three times I have been called upon to disinfect houses or rooms on account of consumption.

Generator used is manufactured by Park, Davis & Co., Detroit, Mich. The amount of formaldehyde used is one quart to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 8; measles, 1. Total number of infectious diseases, 9.

SOUTH CHARLESTON, CLARK COUNTY.

Population, 1,098.

Person making report, Washington Coss, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

Have inspected the sanitary conditions of our schoolhouses.

Have had no houses to disinfect after infectious diseases.

One case of measles was the only case of infectious diseases reported.

SOUTH POINT, LAWRENCE COUNTY.

Population, 300.

Person making report, Dr. C. Wayne McCoy, health officer.

During the year the Board of Health spent \$79.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

No disposition is made of the garbage except as the laity sees fit. Village has a radius of about one mile, and houses are scattered so that special disposition seems unnecessary.

Method for disinfecting houses after infectious diseases: Fumigate with sulphur, four ounces to each 1,000 cubic feet of air space. Treat floors and woodwork with 1-2000 corrosive sublimate solution. Subject clothing that will bear it to an hour's boiling.

Disinfecting is done under my supervision.

Have not been called upon to disinfect houses or rooms on account of consumption.

No cases of infectious diseases were reported.

SPENCERVILLE, ALLEN COUNTY.

Population, 2,600.

Person making report, George A. Rusler, health officer.

Had no cause for prosecution for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

As yet no license has been required by the board to sell milk. I think it would be a proper thing to do.

Inspection of the sanitary conditions of our schoolhouse was made and found our school building in good sanitary condition.

We have no regular system for the collection of garbage but gather it the best way we can. I think we ought to have a regular garbage wagon during the summer season.

The garbage is disposed of by hauling it out wherever we can. We have no regular dump ground. Have requested council to procure a dumping ground several times but so far they have done nothing.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by Charles Miller, undertaker.

Have been called upon once to disinfect houses or rooms on account of consumption.

The Lentz generator is used.

Five cases of typhoid fever were the only cases of infectious diseases reported.

SPRINGBORO, WARREN COUNTY.

Population, 500.

Person making report, John W. Bloss, health officer.

Twelve dollars was the amount spent by the Board of Health during the year.

For violations of health laws or orders of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

Our schoolhouse is in good sanitary condition and is kept that way.

Council has all the garbage collected hauled away at the expense of the taxpayers. A fund has been created for that purpose.

We have a garbage dump for disposition of the garbage.

Have had no disinfecting to do after infectious diseases.

House or rooms on account of con-

sumption are disinfected, but I have not been called upon to disinfect any this year.

We have had no occasion to use a generator. Occupants do the disinfecting.

There were no cases of infectious diseases reported.

SPRINGFIELD, CLARK COUNTY.

Population, 45,000 (estimated).

Person making report, Dr. John M. Buckingham, health officer.

During the year the Board of Health spent \$3,015.81, and \$4,284 (separate fund) for disposal of garbage.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Have no knowledge of any abandoned wells being used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Dairies are not inspected and no license is issued to dairymen. I am now working for appointment of a food and dairy inspector.

The sanitary conditions of our schoolhouses were inspected as required.

Garbage collection is under the management of the Board of Public Service and not the Board of Health. Garbage is collected in covered wagons and hauled to a dumping ground outside of city limits.

The garbage is disposed of by dumping it in an isolated spot and covered up enough to eliminate bad odors. The system is not satisfactory.

Use formaldehyde gas is my method for disinfecting houses after infectious diseases.

The sanitary marshal does the work of disinfecting.

Probably ten or twelve times during the year I have been called upon to disinfect houses or rooms on account of consumption.

Use a sanitary formaldehyde generator manufactured by West Disinfecting Co., New York, and about two pints of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 8; diphtheria, 12; membranous croup, 3; scarlet fever, 51; measles, 270. Total number of infectious diseases, 344. Whooping cough, not reported. Typhoid fever not reported prior to September 1.

SPRING VALLEY, GREENE COUNTY.

Population, 650.

Person making report, Dr. S. E. Dyke, health officer.

During the year the Board of Health spent \$65.

There were no violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

Sanitary conditions of our school-houses were inspected and found to be good.

Garbage is collected in barrels set apart for that purpose.

Disposition of the garbage is made by burning or burying outside of corporation.

Use sulphur fumigators as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally or under my supervision.

Have not been called upon to disinfect houses or rooms on account of consumption.

STEUBENVILLE, JEFFERSON COUNTY.

Population, 20,000.

Person making report, John Welch, health officer.

Amount spent by the Board of Health during the year was \$6,032.17.

Eleven prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The dairy is not inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

All parties dispose of their own garbage.

Method for disinfecting houses after infectious diseases: Close all rooms tightly and disinfect either with formaldehyde or sulphur, using the Kuhn generator.

Health officer does the work of disinfecting personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

The Kuhn generator is used.

Cases of infectious diseases reported: Smallpox, 76; diphtheria, 70; membranous croup and scarlet fever, 15; whooping cough, 81; measles, 29. Total number of infectious diseases, 271. No report on typhoid fever.

STRASBURG, TUSCARAWAS COUNTY.

Population, 800.

Person making report, Dr. J. C. Schutzbach, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

The garbage is disposed of by hauling it out of town.

Sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Generator used is Dr. Leininger's, of Chicago.

Six cases of typhoid fever were the only cases of infectious diseases reported.

ders of the Board of Health no prosecutions were had.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

No disposition is made of the garbage.

Method for disinfecting houses after infectious diseases: Sulphur fumes.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

STRUTHERS, MAHONING COUNTY.

Population, 1,500.

Person making report, John F. Shaffer, health officer.

We get all of our milk from one man. No license is required by the board.

Sanitary conditions of our schoolhouses were inspected and were found to be in poor shape. We expect to build a new schoolhouse this summer.

Garbage is collected and disposed of outside of corporation on some farm and used for fertilizing purposes.

SUGAR CREEK, TUSCARAWAS COUNTY.

Population, 400.

Person making report, A. H. Tyler, Vice President Board of Health.

Nothing was spent by the Board of Health during the year.

Forty dollars was the amount spent.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Have inspected the sanitary conditions of our schoolhouses as required.

We have no system for the collection of garbage.

Each family disposes of its own garbage.

Since the board was organized I have disinfected no houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

STRYKER, WILLIAMS COUNTY.

Population, 1,206.

Person making report, Dr. C. F. Mignin, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

For violations of health laws or or-

SUGAR GROVE, FAIRFIELD
COUNTY.

Population, 400.

Person making report, Dr. S. Renshaw, health officer.

Amount spent by the Board of Health during the year was \$25.

For violations of health laws or orders of the Board of Health there were no prosecutions.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

The garbage is disposed of by carting it to dump on river bank and allowed to tumble into the water.

The sulphur-formaldehyde torches are used as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

One case of typhoid fever was the only case of infectious diseases reported.

SYCAMORE, WYANDOT COUNTY.

Population, 850.

Person making report, Dr. W. H. Wickham, health officer.

Fifteen dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

An inspection of the sanitary conditions of our schoolhouses was made.

All animal and vegetable matter that decays rapidly is dumped and disposed of in out of the way places outside the corporation.

I have used formaldehyde gas as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally or under my supervision.

Have been called upon once to disinfect houses or rooms on account of consumption.

I have followed directions given by manufacturers of formaldehyde and have had very satisfactory results. Have improved burners.

Cases of infectious diseases reported: Typhoid fever, 1; whooping cough, 11; measles, 7. Total number of infectious diseases, 19.

SYLVANIA, LUCAS COUNTY.

Person making report, A. E. Stow, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Do not know of any abandoned wells being used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

No system is employed for the collection of garbage.

The garbage is disposed of by burying it.

Method for disinfecting houses after infectious diseases: Spread bedding loosely on chairs and fumigate strongly with sulphur.

Have not had any disinfecting to do since my appointment but would personally see it done.

Have had no calls to disinfect houses or rooms on account of consumption.

No cases of infectious diseases reported.

TARLTON, PICKAWAY COUNTY.

Population, 338.

Person making report, W. A. Leish, health officer.

Three dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses were not inspected.

We have no system for the collection of garbage except that the village council compels property owners to keep alleys in sanitary condition.

Have had no occasion to disinfect houses after infectious diseases.

Have not been called upon to disinfect houses or rooms on account of consumption.

THORNVILLE, PERRY COUNTY.

Population, 500.

Person making report, Dr. Frank R. Clemson, health officer.

About \$50 was the amount spent by the Board of Health during the year.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Have not inspected the sanitary conditions of our schoolhouses.

Method for disinfecting houses after infectious diseases: Bi-chloride solution. Fumigate with Dr. Novy's formaldehyde generator.

Disinfecting is done by me personally.

In nearly every case houses or rooms on account of consumption are disinfected.

I use Dr. Novy's generator.

There were no cases of infectious diseases reported.

TIFFIN, SENECA COUNTY.

Population, 12,000.

Person making report, Dr. A. C. Schwartz, health officer.

Board of Health spent \$2,564.88 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

The dairy is inspected before giving the license.

Inspection of the sanitary conditions of our schoolhouses was made. We also fumigate our schoolhouses twice a year.

For the collection of garbage we pay a contractor \$1,156 per year. During the summer months he makes three collections a week, and during the winter months two.

Garbage is disposed of by hauling to the country and feeding to hogs.

Fumigate the entire house with formaldehyde is our method for disinfecting houses after infectious diseases.

The sanitary officer does the work of disinfecting.

During last year I have been called upon twenty times to disinfect houses or rooms on account of consumption. We fumigate when called upon.

I had two generators made similar to Leininger's, only four times as large. We use eight ounces to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 19; membranous croup, 5; scarlet fever, 2; typhoid fever, 42; whooping cough, 3; measles, 7.

Total number of infectious diseases, 78.

TIPPECANOE CITY, MIAMI COUNTY.

Population, 2,000.

Person making report, Frank N. Agenbroad, health officer.

Amount spent by the Board of Health during the year, \$120.55.

For violations of health laws or orders of the Board of Health no prosecutions were had. On July 13, 1904, I notified John O'Conner, of Dayton, Ohio, who is canal superintendent, to mow weeds on the towpath, which he failed to do, and the board had same done. The expense was \$7.50.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected. I inspect the school buildings every three or four months during the year and always have found them in good sanitary condition.

The garbage is collected and hauled one and one-half miles from the city and buried in an abandoned gravel pit, which is 2,000 feet or more from any well or water supply of any kind.

We compel property owners to deposit the garbage and refuse from the kitchen in tight barrels, which is disposed of in the gravel pit as above mentioned.

Method for disinfecting houses after infectious diseases: First have all

bedding and wearing apparel hung on lines stretched within the rooms to be disinfected, books spread open, windows and doors well sealed, and everything washed that can be washed and boiled for one hour after disinfecting.

Work of disinfecting is done by me personally or under my supervision.

Have been called upon once to disinfect houses or rooms on account of consumption.

I use the old-fashioned generator with boiler and tube and one and one-half ounces of formaldehyde to 1,000 cubic feet of air space, except in smallpox, then I use two ounces.

The only thing I have to suggest is that the boards of health of this state should see that their health officers perform their duty according to the law and instructions of the State Board of Health, and thereby lessen the number and spread of contagious diseases. See that the people get pure food, water and milk, and above all, be in touch with our worthy Secretary of the State Board of Health, Dr. C. O. Probst.

Following cases of infectious diseases were reported: Smallpox, 1; diphtheria, 7; scarlet fever, 2; typhoid fever, 2; other infectious diseases, 4. Total number of infectious diseases, 16.

TOLEDO, LUCAS COUNTY.

Population, 157,200.

Person making report, Dr. W. W. Brand, health officer.

Board of Health spent \$20,358.93 during the year.

For violations of health laws or orders of the Board of Health, the following prosecutions were had: Undertaker burying without permit or filling physician's death certificate, found guilty; sexton receiving body without permit, off docket, 1; violation of health ordinance, off docket, 6; violation of health orders, time extended to do work, 1; violation of

plumbing ordinances, cases pending. agreeing to rectify, 2; violation of Board of Health orders, work later attended to, 6; violation of rubbish ordinance, fined \$10 and costs, 1; selling bad veal, fined \$31.65, 1.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is required by the board.

Inspection of the dairy is made before giving the license.

Have inspected the sanitary conditions of our schoolhouses.

System for the collection of garbage: Municipal collection with reduction plant.

Dispose of the garbage by reducing it.

Formaldehyde is our method for disinfecting houses after infectious diseases.

Disinfecting is done by the vaccinator of the department.

All houses where death has occurred from tuberculosis, and where they have moved from houses by request are disinfected.

West Disinfecting Co.'s generator is used, and 10 ounces of formaldehyde to 1,000 cubic feet of air space.

Would suggest money to increase the efficiency of boards of health.

Cases of infectious diseases reported: Smallpox, 24; diphtheria, 266; membranous croup, 27; scarlet fever, 49; typhoid fever, 230; whooping cough, 2; measles, 1,110; other infectious diseases, 106. Total number of infectious diseases, 1,814.

TIRO, CRAWFORD COUNTY.

Population, 350.

Person making report, Dr. W. H. Guiss, health officer.

Twenty dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for viola-

tions of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no dairy.

Have inspected the sanitary conditions of our schoolhouses.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Fumigate with formaldehyde. We use a Novy generator.

Work of disinfecting is done by me personally.

I have been called upon to disinfect two houses on account of consumption.

Generator used is the Novy. Twelve ounces of formaldehyde to 1,000 cubic feet of air space is used.

Seven cases of scarlet fever were the only cases of infectious diseases reported.

TONTOGANY, WOOD COUNTY.

Population, 360.

Person making report, Thomas A. Bickerstaph, health officer.

During the year the Board of Health spent \$35.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouse. Totogany High School, situated on Lincoln street, two-story frame building, stone foundation; water supply from drilled well 107 feet deep cased in solid rock, open space 300 feet; two wells from direct power 100 feet from building;

dry earth closets; four primary rooms, space 38x29½ feet; six windows, 74x38 inches; number of pupils, 45; intermediate floor space, 29½x23 feet; eight windows, 74x38 inches; number of pupils, 54; grammar room 29½x23 feet; eight windows; number of pupils, 26; high room, floor space 38x29½ feet; seven windows, 74x38 inches; number of pupils, 34. The ceiling is 12 feet high in each room. There are also four cloak rooms heated by four stoves; fuel, soft coal. Privies are in good condition.

We have no system for the collection of garbage.

Each family disposes of its own garbage, and there has been no offensive odor from slops thrown on the ground, nor has the ground been constantly wet from it at any place.

We use stick sulphur, four pounds to 1,000 cubic feet of air space, and shut the room up tight and leave it for twelve hours as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Would suggest having a member of the State Board of Health visit each city and village and go over the ground with the local board and make suggestions for improvements in the sanitary conditions where improvement is deemed necessary; also take note of any new plans or system instituted by the local board and their efficiency.

Cases of infectious diseases reported: Typhoid fever, 4 (all imported, not a case having originated in this town during the year ending December 31, 1904); measles, 12. Total number of infectious diseases, 16.

TORONTO, JEFFERSON COUNTY.

Population, 3,526.

Person making report, John Wellington, health officer.

One dollar was the amount spent by the Board of Health during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Use formaldehyde and alcohol in pan and place on a little stove I have and burn it as a method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

The following cases of infectious diseases were reported: Smallpox, 2; diphtheria, 9; scarlet fever, 2; typhoid fever, 28; measles, 80. Total number of infectious diseases, 121.

TRIMBLE, ATHENS COUNTY.

Population, 800.

Person making report, A. W. Dean, health officer.

During the year the Board of Health spent \$78.75.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage or drainage from privies or water closets.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouse. Had vaults cleaned, and recommended heating the building with a furnace, and I think the school board will put one in this year.

No system is employed for the collection of garbage.

The garbage is left to rot where thrown for want of a dumping ground. I have asked council frequently to procure a dumping ground, but so far they have refused to furnish it. They do not try to assist the health officer.

Burn eight pounds of sulphur and

eight ounces of wood alcohol in a kettle to 1,000 cubic feet of air space is my method for disinfecting houses after infectious diseases.

The attending physician and myself do the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

I use a solution of formaldehyde with a spray pump for disinfecting clothing and other goods.

Would suggest that village councils furnish health boards with a dumping ground within a reasonable time when so requested by the board. Without a dumping ground, how can a health board keep the town clean and in good sanitary condition?

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 1; scarlet fever, 37; typhoid fever, 31 whooping cough, (several cases not reported to board); other infectious diseases, 7. Total number of infectious diseases, 81.

TROTWOOD, MONTGOMERY COUNTY.

Population, 400.

Person making report, Dr. R. R. Shank, health officer.

During the year the Board of Health spent \$20.

For violations of health laws or orders of the Board of Health no prosecutions were had.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have no schoolhouses in corporation.

Have no special system for the collection of garbage.

Follow method given out by the State Board of Health is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

West Disinfecting Co.'s formaldehyde generator is used, and 12 ounces of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Smallpox, 12; typhoid fever, 1; other infectious diseases, 3. Total number of infectious diseases, 16.

TUSCARAWAS, TUSCARAWAS COUNTY.

Population, 500.

Person making report, M. A. Romig, Mayor.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected and found to be satisfactory except we do not approve of the dry hot air furnace used. Ventilation is good. Interest is taken by principals and teachers to maintain good sanitary conditions.

Citizens are required to collect and dispose of the garbage. It is hauled one mile from town and burned.

Method for disinfecting houses after infectious diseases: Physicians are required to use regulation disinfectants for the various diseases. See that they do it.

Physicians and residents under my supervision do the work of disinfecting.

Had no occasion to disinfect houses or rooms on account of consumption. Have had no consumption here.

There were no cases of infectious diseases reported during the year.

UHRICHSVILLE, TUSCARAWAS COUNTY.

Population, 5,000.

Person making report, R. W. Walton, Clerk of the Board of Health.

Board of Health spent \$434.98 during the year.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is required by the board.

The dairy is inspected sometimes before and sometimes after giving the license.

The sanitary conditions of our schoolhouses were inspected once last year.

Scavengers pay license for privilege of collecting garbage.

Scavengers dispose of the garbage mostly by feeding it to hogs.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Health officer does the work of disinfecting.

Have been called upon once to disinfect houses or rooms on account of consumption.

Novy generator is used, and about one-half pint of formaldehyde to 1,000 cubic feet of air space.

Following cases of infectious diseases were reported during the year: Diphtheria, 4; scarlet fever 1; typhoid fever 10; other infectious diseases 1. Total number of infectious diseases 16.

UNION CITY, DARKE COUNTY.

Population, 2,000.

Person making report, Dr. J. E. Detamore, health officer.

Following is the amount spent by the Board of Health during the year: For sanitary purposes, \$26.05; for salaries, \$100.

There were no prosecutions for vio-

lations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

The dairy is not inspected before giving the license.

A partial inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection and disposal of garbage.

We use a formaldehyde lamp as a method for disinfecting houses after infectious diseases.

For disinfecting I prepare the material and amount and give instructions how the work is to be done.

Have not been called upon to disinfect houses or rooms on account of consumption this year.

Schering's formalin disinfectant is used and from 65 to 70 pastils.

Would suggest always placing a doctor as health officer, regardless of his politics. We have in our village some men who want the office that can't even keep their own lots clean.

One case of diphtheria was the only case of infectious diseases reported.

UNIONVILLE CENTER, UNION COUNTY.

Population 300.

Person making report, Dr. C. O. McCune, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

I have used a sulphur fumigator as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

During last year I have not been called upon to disinfect houses or rooms on account of consumption.

Total number of infectious diseases reported was 14, as follows: Typhoid fever, 4; whooping cough, 10.

I usually do the work of disinfecting but not always.

Have never been called upon to disinfect houses or rooms on account of consumption.

I use Rauschenberg's formaldehyde deodorizer. Instructions with deodorizer advise three pints of the 40 per cent. solution of formaldehyde to 1,000 square feet.

Total number of infectious diseases, 15, as follows: Scarlet fever, 4; measles, 11.

UNIOPOLIS, AUGLAIZE COUNTY.

Population (1900 census), 500.

Person making report, Dr. J. W. Hurlburt, health officer.

During the year the Board of Health spent \$9.15.

For violations of health laws or orders of the Board of Health there were no prosecutions during the year.

Abandoned wells are not used that I am aware of to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

There is but little milk sold here, and it is all produced by cows owned in or near the village and known to be good.

I have inspected the sanitary conditions of our schoolhouse and outbuildings and found them to be satisfactory in every way.

We have no system for the collection of garbage.

Disposition of the garbage is made by having it buried, burned or hauled a suitable distance from the village. The different ways of disposing of this matter seems to be required at this time as council has failed to provide a dumping ground.

I make the usual preparations and use sulphur and formaldehyde as a method for disinfecting houses after infectious diseases.

URBANA, CHAMPAIGN COUNTY.

Population, 7,050.

Person making report, Dr. H. M. Pearce, health officer.

Amount spent by the Board of Health during the year \$855.66.

For violations of health laws or orders of the Board of Health one prosecution was had—for dumping night soil in an open gas trench. Was fined by the Mayor.

Abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Whenever we find any being used for drainage of any sort we compel them to stop using them.

Board does not inspect the dairies.

Dairymen are not required to take out a license.

Have inspected the sanitary conditions of our schoolhouses.

Collection of garbage is made by city carts.

The garbage is disposed of by hauling to a gravel pit one mile from the city and there burned or buried.

Method for disinfecting houses after infectious diseases: Make rooms as nearly air tight as possible, hang all clothing on lines and chairs and keep rooms closed for from six to eight hours afterward. Wash the woodwork with bi-chloride solution.

Sanitary officer does the work of disinfecting.

Have been called upon twice to disinfect houses or rooms on account of consumption.

The West generator is used. Ten ounces of the 40 per cent. solution of formaldehyde is used to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 9; scarlet fever, 24; typhoid fever, 3; measles, 85; other infectious diseases, 11. Total number of infectious diseases, 132.

UTICA, LICKING COUNTY.

Population, 1,200 to 1,500.

Person making report, Dr. G. T. Ely, health officer.

Very little was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from schoolhouses.

License to sell milk is not required by the board.

Sanitary conditions of our schoolhouses were inspected.

No system is employed for the collection of garbage.

Have no regular method for disposing of the garbage. One of our greatest troubles is keeping the town in a sanitary condition.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

We use an improvised generator made of a teakettle with a three-foot spout attached. Amount of formaldehyde used is two-thirds of a pint to a pint for 1,000 cubic feet of air space.

Cases of infectious diseases re-

ported: Typhoid fever, 15; whooping cough, not reported; measles, many cases but not reported. Total number of infectious diseases, 15.

VAN BUREN, HANCOCK COUNTY.

Population, 400.

Person making report, J. C. Grubb, Mayor.

Nothing was expended by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

Have no system for the collection of garbage.

Do not know the method used for disinfecting houses after infectious diseases. We have a man employed for this purpose.

The work of disinfecting is done by William Bowersox.

Have not been called upon to disinfect houses or rooms on account of consumption.

VANDALIA, MONTGOMERY COUNTY.

Population, 350.

Person making report, Dr. W. H. Riley.

The Board of Health spent \$320 during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

No disposition is made of the garbage by health officials.

Sulphur and formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Schering's formalin disinfectant is used and 10 ounces of the 40 per cent. solution of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 2; whooping cough, 10. Total number of infectious diseases, 12.

VAN WERT, VAN WERT COUNTY.

Population, 7,000.

Person making report, Dr. C. G. Church, health officer.

During the year the Board of Health spent \$1,069.

For violations of health laws or orders of the Board of Health there was one prosecution—for dumping contents of privy vault into sewer well. Fine \$5 and costs.

We have no knowledge of any abandoned wells being used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The dairy is not inspected before giving the license.

The sanitary conditions of our schoolhouses were inspected.

We have no regular system for the collection of garbage. Farmers collect household garbage. Board requires an

air-tight galvanized can for receptacle of slops and garbage from restaurants, hotels, groceries and saloons in business district.

The garbage is disposed of by being fed to swine. Night soil is buried in trenches at city dump ground.

Method for disinfecting houses after infectious diseases: Use formaldehyde after method advised by the State Board of Health.

Work of disinfecting is done by me personally.

During the year I have been called upon four times to disinfect houses or rooms on account of consumption.

Leininger's generator is used and one and one-half ounces of solidified formaldehyde per 1,000 cubic feet of air space.

The Van Wert Board of Health would be more efficient could we have a sanitary policeman who could devote his whole time to the work of the local board and be paid accordingly. We are greatly handicapped in this regard.

During the year the following cases of infectious diseases were reported: Smallpox, 12; diphtheria, 1; scarlet fever, 4; measles (not complete), 3. Total number of infectious diseases, 20.

VERMILION, ERIE COUNTY.

Population, 1,184.

Person making report, J. M. Delker, health officer.

Total number of cases infectious diseases was one case of typhoid fever.

VERSAILLES, DARKE COUNTY.

Population, 1,500.

Person making report, Dr. C. F. Ryan, health officer.

Board of Health spent \$5.25 during the year.

There were no prosecutions for violation of health laws or orders of the

Board of Health. When privy vaults are reported and the owner disregards the notice, the board has it done and certifies the costs to county auditor as tax on the property. One transaction usually effects a cure.

Practically the same thing as abandoned wells are used to receive house drainage, or drainage from privies or water closets. Holes are dug in the gravel and walled with loose brick.

Two years ago the board took action on these cesspools, and several of the board being business men, and being threatened with a lawsuit, they got weak-kneed and backed down. The Mayor got disgusted and let the matter drop.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made. The rooms have all been frescoed.

The garbage is collected and put in piles and disposed of by hauling it away.

Close room perfectly tight and generate with formaldehyde. Leave in this condition for twenty-four hours then remove everything and scrub and clean the room is my method for disinfecting houses after infectious diseases.

Disinfecting is done by the sanitary officer.

Have never been called upon to disinfect houses or rooms on account of consumption. No precautions are taken in that direction.

We use Leininger's generator. For an ordinary room we use one ounce of the solidified formaldehyde to 1,000 cubic feet of air space.

I would suggest a small salary for the board. We have a hard time to secure a quorum at our meetings.

Cases of infectious diseases reported: Scarlet fever, 6; typhoid fever, not reported. Total number of infectious diseases reported, 6.

VIENNA CROSS ROADS, CLARK COUNTY.

Population, 546.

Person making report, Dr. E. A. Dye, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Garbage is collected by farmers.

Formaldehyde is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

To disinfect houses or rooms on account of consumption I have never been called upon.

There were no cases of infectious diseases reported.

WADSWORTH, MEDINA COUNTY.

Population, 2,000.

Person making report, M. C. Lytle, assistant health officer and secretary Board of Health.

Amount spent by the Board of Health during the year was \$5.60.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses are inspected each year.

We have no system for the collection of garbage.

Our scavenger disposes of old tin

cans and rubbish wherever he is permitted. What can be used for fertilizing purposes he hauls to some farm when the owner gives him permission to do so.

Method for disinfecting houses after infectious diseases: I use a gasoline stove and a pan holding one and one-half gallons. I put a quart or more of formaldehyde in the pan, which I boil rapidly, evaporating in about forty minutes.

Work of disinfecting is done by me personally.

Have been called upon three or four times during the year to disinfect houses or rooms on account of consumption.

Generator used is tin or copper pan and a one-burner gasoline stove.

WALDO, MARION COUNTY.

Population, 300.

Person making report, Dr. D. B. Osborn, health officer.

The Board of Health had no expenditures, to my knowledge, during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Use formaldehyde generator is my method for disinfecting houses after infectious diseases.

There has been no need of disinfecting in past years.

Have not been called upon to disinfect houses or rooms on account of consumption.

We have a Betz generator. It gen-

erates 100 per cent. gas from wood alcohol.

Would suggest that merely a health officer should be appointed for villages and no board, for if the boards in all small places are like ours it is hard to get much good out of them.

Total number of cases of infectious diseases was five cases of chicken pox.

WAPAKONETA, AUGLAIZE COUNTY.

Population, 5,000.

Person making report, A. Kohler, health officer.

During the year the Board of Health spent \$147.

Abandoned wells are not known to be used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

I have visited and inspected all the schoolhouses once during each school month and always found them clean and in a sanitary condition.

Method for disinfecting houses after infectious diseases: I close all openings, light the gas, close the door and keep closed for from five to six hours then I spray with a solution of formaldehyde and close the door again for two or three hours.

All the disinfecting is done by me personally.

Dr. George Leininger's generator is used one and one-half ounces of formaldehyde to 1,000 cubic feet of air space.

Five cases of diphtheria were the only cases of infectious diseases reported.

WARREN, TRUMBULL COUNTY.

Population, 12,000, estimated.

Person making report, Dr. G. N. Simpson, health officer.

During the year the Board of Health spent \$1,473.82.

Following prosecutions were had for violations of health laws or orders of the Board of Health: Violating spit ordinance, committing nuisance, burying dead animals without permit. Fine and costs were imposed in each case.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A certificate is required by the board to sell milk.

The dairy is inspected before giving the certificate.

Sanitary conditions of our school-houses were inspected.

For the collection of garbage a man leaves galvanized can wherever wanted and calls weekly or semi-weekly to collect at a fixed price. He has a permit from the Board of Health to collect.

Garbage is disposed of by hauling to dumping ground. Sometimes fire gets through it from boxes and the debris is taken to the dump.

Method for disinfecting houses after infectious diseases: In smallpox cases the entire house is disinfected with formaldehyde, either by placing the inmates outside on the premises or by taking separate days for separate parts of the house. The wearing apparel is disinfected beforehand. For other diseases we do not always disinfect the whole house, only when necessary.

Sanitary Officer Webb does the disinfecting.

Have had one call to disinfect houses or rooms on account of consumption.

For three years we have used the 40 per cent. solution of formaldehyde for spraying and have had no after effects. All clothing as far as possible is hung on clothes lines and well exposed. In cases of smallpox the room where the patient has been we possibly would use a quart or more but fill the room thoroughly.

Would suggest that boards of health be kept out of politics and should have

control over the building and maintenances of detention hospitals. Good sanitary regulations cannot be achieved by public service boards acting as boards of health.

During the year the following cases of infectious diseases were reported: Smallpox, 5; diphtheria, 1; scarlet fever, 5; typhoid fever, 17; whooping cough, 10; measles, 67; other infectious diseases (chicken pox), 28. Total number of infectious diseases, 133.

WASHINGTON, GUERNSEY COUNTY.

Population, 400.

Person making report, S. B. Lawrence, health officer.

Nothing was spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

The disposal of garbage is under the control of the health officer and such means as are adopted and carried out as shall be to the best interests of the health of the village.

My method for disinfecting houses after infectious diseases is to close all openings, chimneys, etc., of the room or rooms and burn sulphur, burn all clothing, books, etc., that might cause a spread of the disease.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

No cases of infectious diseases were reported.

WASHINGTON C. H., FAYETTE
COUNTY.

Population, 5,771.

Person making report, F. M. Bate-
man, health officer.

Amount spent by the Board of
Health during the year was \$200.

There were no prosecutions for vio-
lations of health laws or orders of the
Board of Health.

There are no abandoned wells used
to receive house drainage, or drainage
from privies or water closets.

Board does not require a license to
sell milk.

Sanitary conditions of our school-
houses were inspected and all were
found to be in good condition.

We have no system for the collec-
tion of garbage.

We use both the liquid and solidified
formaldehyde and seal houses and
burn some for from three to four
hours.

The work of disinfecting is done un-
der direct supervision of the health
officer.

Five or six times have I been called
upon to disinfect houses or rooms on
account of consumption.

Three cases of typhoid fever and ten
of measles were the only cases of in-
fectious diseases reported.

WASHINGTONVILLE, COLUMBI-
ANA AND MAHONING
COUNTIES.

Population, 1,000.

Person making report, Richard Wil-
kinson, clerk.

During the year the Board of Health
spent \$1,950.

No prosecutions were had for viola-
tions of health laws or orders of the
Board of Health.

Abandoned wells are not used to re-
ceive house drainage, or drainage
from privies or water closets.

A license to sell milk is not required
by the board.

Have inspected the sanitary condi-
tions of our schoolhouses.

No system is employed for the col-
lection of garbage.

Method for disinfecting houses after
infectious diseases: Formaldehyde
with oil stove.

Health Officer Wm. Culler does the
work of disinfecting.

Have not been called upon to disin-
fect houses or rooms on account of
consumption.

Twenty-two cases of smallpox were
the only cases of infectious diseases
reported.

WAUSEON, FULTON COUNTY.

Population, 2,250.

Person making report, Frank Yar-
nell, health officer.

The amount spent by the Board of
Health during the year is not known.

There were no prosecutions for vio-
lations of health laws or orders of the
Board of Health.

There are no abandoned wells used
to receive house drainage, or drainage
from privies or water closets.

The board does not require a license
to sell milk.

The dairy is not inspected before
giving the license.

Inspection of the sanitary conditions
of our schoolhouses was made.

We have no system for the collec-
tion of garbage.

Garbage is disposed of by private
parties.

We use formaldehyde through a san-
itary formaldehyde generator as a
method for disinfecting houses after
infectious diseases.

Disinfecting is done by me person-
ally.

Have been called upon once to dis-
infect houses or rooms on account of
consumption.

Use a sanitary formaldehyde gener-

ator made by West Disinfecting Co., Chicago, one gauged to the 1,000 cubic feet.

Besides two cases of diphtheria, two of membranous croup and 150 of scarlet fever there is no record of cases of infectious diseases.

WAVERLY, PIKE COUNTY.

Population, 1,854.

Person making report, James J. Emmitt, health officer.

Amount spent by the Board of Health during the year was \$142.

There were no prosecutions for violations of health laws or orders of the Board of Health.

To receive house drainage, or drainage from privies or water closets no abandoned wells are used.

The board does not require a license to sell milk.

Have inspected the sanitary conditions of our schoolhouses and found the school buildings deficient in manner of heating, otherwise fairly good.

A few swill carts from the country collect the garbage; some bury theirs and quite a number throw it anywhere.

The street and alley fund has been sufficient heretofore to provide for the disposition of the garbage and keep things clean, but nothing has been done in the last year or so for lack of funds.

Method for disinfecting houses after infectious diseases: I first make as near air tight as I can, all openings, then use formalin pastils (Schering's), according to size of room. I leave the fumes in the room ten or twelve hours, expose everything in the room to the fumes, and for any goods of value, washable, use corrosive sublimate solution burn most of little value.

The work of disinfecting is done by me personally.

To disinfect houses or rooms on ac-

count of consumption I have had two calls. In one case I burned everything, in the other used boiling water, corrosive sublimate and formalin generator.

I use from 30 to 40 of Schering's pastils (formalin) in a Schering generator to every 1,000 cubic feet of air space.

Our board is composed of good, solid members, some are hard working, others engaged in lighter pursuits. A laborer after doing a day's hard work, feels very little like walking one or one and one-half miles without any compensation. A slight remuneration would be an incentive to better the attendance.

Cases of infectious diseases reported were about forty of whooping cough and thirty of measles. Total number of infectious diseases, 70.

WAYNESBURG, STARK COUNTY.

Population, 700.

Person making report, Dr. Gustav A. Shane, health officer.

The amount spent by the Board of Health during the year was \$25.

No prosecutions were had for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected.

Each householder deposits the garbage in a proper receptacle on premises.

So much of it as can be burned on premises is disposed of in this manner, the remainder is hauled to adjoining farm lands and added to stable manure when practicable.

The general application of soap and boiling water in abundance followed by chlorine gas in concentrated quanti-

ties is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

During the year I was not called upon to disinfect houses or rooms on account of consumption.

The public health service would be greatly improved by the discontinuance of boards of health and the substitution of an intelligent, firm, conservative health officer under the provision of existing statutes.

Four cases of infectious diseases were reported during the year.

WAYNESFIELD, AUGLAIZE COUNTY.

Population, about 700.

Person making report, Dr. W. S. Turner, Clerk of Board of Health.

Three dollars was the amount expended by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board requires no license to sell milk.

Inspection is not made of the dairy before giving the license.

Sanitary conditions of our school-houses were inspected.

Have no special system for the collection of garbage and generally dispose of it by burying.

My method for disinfecting houses after infectious diseases is to burn all worthless material, thoroughly boil such as can be properly treated that way, fumigate with formaldehyde fumes, wash the floors and all wood-work, walls, etc., with bi-chloride solution, to be followed with soap and water.

Work of disinfecting is generally done by myself. I sometimes have

parties wash the woodwork, carpets, etc.

Have never been called upon to disinfect houses or rooms on account of consumption.

Generator used is made by the Dr. George Leininger Chemical Company, of Chicago, Ill. I use plenty formaldehyde; cannot say as to exact amount.

Number of cases of infectious diseases reported was two cases of typhoid fever.

WELLINGTON, LORAIN COUNTY.

Population, 2,100.

Person making report, E. T. Robinson, health officer.

Amount spent by the Board of Health during the year was \$110, \$100 as salary and \$10 for sanitary expenses.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage or drainage from privies or water closets.

License to sell milk is not required by the board.

Have inspected as the milk is sold here.

I have inspected the sanitary conditions of our schoolhouses.

Collection of garbage is made by garbage man and disposed of outside of corporation.

Method for disinfecting houses after infectious diseases: We are having our first case of infectious diseases since I have been health officer. Reported on the 2d inst. Will use disinfectant of formaldehyde recommended by our undertaker.

Disinfecting is done by myself.

To disinfect houses or rooms on account of consumption, the above case will be my first. The undertaker had two calls.

For 1,000 cubic feet of air space we use six ounces of formaldehyde and a box of disinfecting compound, putting

the compound in a dish and pour on the formaldehyde, and I think we get more gas from it than from the Leininger generator used by former health officer Dr. Holland.

Total number of infectious diseases reported was one case of membranous croup.

WELLSTON, JACKSON COUNTY.

Population, 10,000.

Person making report, W. J. Brown, health officer.

About \$26 was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health. I do not have much trouble with our citizens so far as sanitary laws are concerned.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected and found good, only they tap the mine for drainage, but I think that will be stopped.

Garbage is collected in barrels and disposed of in a field rented for that purpose.

I use dry and liquid formaldehyde and burn and spray the house and contents as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

On account of consumption every case I have been called upon has been disinfecting.

Dr. George Leininger's generator is used. I use a sufficient amount of formaldehyde.

Our board does not meet as often as it should. The doctors do not report births or infectious diseases.

Cases of infectious diseases reported: Smallpox, 4; diphtheria, 5; membranous croup, 8; scarlet fever, 7; typhoid fever, 28; whooping cough, 2; measles, 5. Total number of infectious diseases, 59.

WELLSVILLE, COLUMBIANA COUNTY.

Population, 6,146.

Person making report, Dr. M. C. Tarr, health officer.

Board of Health spent \$1,125.61 during the year.

For violations of health laws or orders of the Board of Health there was one prosecution—for digging closet without permit. Fined \$8.60.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses.

Garbage is collected and hauled to city limits, where it is disposed of by burying.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

Health officer does the work of disinfecting personally.

Have been called upon three times to disinfect houses or rooms on account of consumption.

Generator used is manufactured by Primus Cooking and Heating Appliance Co., of New York. We use 10 ounces of formaldehyde to 1,000 cubic feet of air space.

During the year the following cases of infectious diseases were reported: Diphtheria, 3; membranous croup, 2; scarlet fever, 21; typhoid fever, 26; whooping cough, 40; measles, 34. Total number of infectious diseases, 126.

WEST ALEXANDRIA, PREBLE COUNTY.

Population, 900.

Person making report, George W. Campbell, health officer.

Eighty dollars was the amount expended by the Board of Health during the year.

For violations of health laws or or-

ders of the Board of Health the following prosecutions were had: For putting in vaults without permit, 5; one, and the first one, a councilman, for violating hog ordinance. Total arrests, 6. Mayor imposed fines. Some were fined \$1.00 and the others the cost. Mayor remitted all fines.

There are at least six abandoned wells and many cesspools in grove used to receive house drainage, or drainage from privies or water closets.

The above shows you five arrests by me and the result. Have tried to have an ordinance passed by council, but failed.

No license is required to sell milk.

The sanitary conditions of our schoolhouses were inspected and found to be satisfactory.

Garbage is collected and disposed of by compelling citizens to have it hauled to dumping ground provided for that purpose one-half mile from the village.

Had no occasion to disinfect houses after infectious diseases.

At no time have I been called upon to disinfect houses or rooms on account of consumption.

WEST CARROLLTON, MONTGOMERY COUNTY.

Population, 1,000.

Person making report, F. E. Hinkson, health officer.

Board of Health spent \$40.50 during the year.

For violations of health laws or orders of the Board of Health there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board

Have inspected the sanitary conditions of our schoolhouses.

During the warm season of the year the garbage is collected and removed

twice a week to the river at the expense of the village.

Garbage is disposed of by dumping on river bank.

The method used here for disinfecting houses after infectious diseases is to use the solidified formaldehyde made by Dr. George Leininger, of Chicago, Ill.

Work of disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator is used. To 1,000 cubic feet of air space one ounce of the crystalized or solidified formaldehyde is used.

The following cases of infectious diseases were reported: Diphtheria, 1; scarlet fever, 5; measles, 9; other infectious diseases, 25 Total number of infectious diseases, 40.

WESTERN STAR, SUMMIT COUNTY.

Population, 248.

Person making report, Fred Becker, health officer.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

We have no dairies.

No cases of infectious diseases were reported.

WEST JEFFERSON, MADISON COUNTY.

Population, 830.

Person making report, Albert Clark, health officer.

During the year the Board of Health spent \$83.25.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

No inspection of the sanitary conditions of our schoolhouses was made.

Garbage is not collected.

Method for disinfecting houses after infectious diseases: We have a formaldehyde generator made by Dr. George Leininger, of Chicago, Ill. Having had no occasion to use same, know but little of its use. Would use formaldehyde in disinfecting.

In case disinfecting is required would follow instructions of a local physician.

WEST LAFAYETTE, COSHOCTON COUNTY.

Population, 900.

Person making report, Peter Johnson, health officer.

Amount spent by the Board of Health during the year was \$50.55.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

The sanitary conditions of our schoolhouses were inspected and found everything satisfactory.

We have no system for the collection of garbage.

Burn plenty of sulphur and ventilate thoroughly is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Cases of infectious diseases reported: Smallpox, 16; whooping cough, 5; measles, 3. Total number of infectious diseases, 24.

WEST LEIPSIC, PUTNAM COUNTY.

Population, 450.

Person making report, T. C. Slaybaugh, Secretary of Board of Health.

During the year the Board of Health spent \$8.50.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected and found to be in good sanitary condition.

We have a dumping ground where we dispose of the garbage by burying it.

Use formaldehyde is my method for disinfecting houses after infectious diseases.

The health officer does the work of disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Amount of formaldehyde used is eight ounces to 1,000 cubic feet of air space, owing to the nature of the case.

Lentz's formaldehyde gas generator is used.

Two cases of scarlet fever were the only cases of infectious diseases reported.

WEST MANSFIELD, LOGAN COUNTY.

Population, 1,000.

Person making report, Dr. H. A. Skidmore, health officer.

Fifty dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

Have inspected the sanitary conditions of our schoolhouses and were found to be in good shape, except heating apparatus, which is a hot air furnace. Have been compelled to put stoves in some of the rooms.

No system is employed for the collection of garbage. It is collected in barrels, wagon beds, etc., by farmers.

I presume disposition of the garbage is made by feeding it to hogs.

Method for disinfecting houses after infectious diseases is usually with Leininger's formaldehyde generator or by burning sulphur.

Work of disinfecting is sometimes done by myself, if not, by owners of property.

Have had probably six or eight calls to disinfect houses or rooms on account of consumption.

Town has no large generator. The small Leininger solidified generator is used.

Total number of infectious diseases, 5, as follows: Typhoid fever, 3; measles, 2.

Have not inspected the sanitary conditions of our schoolhouses during the year of 1904.

Garbage is taken across the river from the village and disposed of on a dumping ground near the river bank twice a year.

For disinfecting houses after infectious diseases our method is to follow the instructions given with Mulford's formaldehyde Regenerator.

The health officer does the work of disinfecting.

Have never been called upon to disinfect houses or rooms on account of consumption.

Mulford's generator is used, and about 12 ounces of formaldehyde per 1,000 cubic feet in rooms where contents are to be disinfected.

Cases of infectious diseases reported: Typhoid fever, 1; whooping cough (estimated), 25; other infectious diseases (mumps, estimated), 50. Total number of infectious diseases, 76.

WESTON, WOOD COUNTY.

Population, 1,000.

Person making report, J. W. Williams, health officer.

The amount expended by the Board of Health was very little. Except salary of the sanitary police, \$20, nothing was spent.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

I inspected the sanitary conditions of our schoolhouses in 1892 and 1893. Last year Dr. W. W. Hill was health officer.

Burn sulphur is my method for disinfecting houses after infectious diseases.

WEST MILTON, MIAMI COUNTY.

Population, about 1,500.

Person making report, Dr. Gainor Jennings, health officer.

Amount spent by the Board of Health during the year was \$119.75.

For violations of health laws or orders of the Board of Health no prosecutions were had.

No abandoned wells are used to receive house drainage or drainage from water closets, but a few water closets are drained into earth covered cess-pools.

No action has been taken to stop the practice.

A license to sell milk is not required by the board.

WEST SALEM, WAYNE COUNTY.

Population, 700.

Person making report, J. W. Ferguson.

Thirty dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

No license to sell milk is required by the board.

Inspection was made of the sanitary conditions of our schoolhouses.

We have no system for the collection of garbage.

I have been using formaldehyde as a method for disinfecting houses or rooms after infectious diseases.

Disinfecting is done by me personally.

Have not been called upon to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator No. 3 is used, and about one ounce of solidified formaldehyde to 1,000 cubic feet of air space.

Eleven cases of diphtheria were the only cases of infectious diseases reported.

WEST UNION, ADAMS COUNTY.

Population, 1,200.

Person making report, Dr. James W. Bunn, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

License to sell milk is not required by the board.

We have no dairies here.

Inspection of the sanitary conditions of our schoolhouses was made.

We use the cart system for the collection of garbage.

Disposition of the garbage is made by dumping it outside the corporation and burning it.

I use Lister's fumigator as a method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

During the last year I have been called upon twice to disinfect houses or rooms on account of consumption.

We use Lister's fumigator.

Two cases of typhoid fever were the only cases of infectious diseases reported.

WEST UNITY, WILLIAMS COUNTY.

Population, 900.

D. C. Peppard, health officer.

No report made.

WHARTON, WYANDOT COUNTY.

Person making report, Moses Kean, Clerk of the Board of Health.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Garbage is disposed of by hauling to the country and dumping on farms.

Have had no occasion to use any method for disinfecting houses after infectious diseases, as we have had no cases of infectious diseases during the past two years.

No cases of infectious diseases reported.

WHITEHOUSE, LUCAS COUNTY.

Population, 610.

Person making report, J. F. Lehman, Clerk and health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were inspected.

We have no system for the collection of garbage.

Disposition of the garbage is made by feeding it to hogs and chickens.

We have had no occasion to disinfect houses after infectious diseases.

Disinfecting is done by myself.

Have not been called upon to disinfect houses or rooms on account of consumption.

We do not use a generator.

There were no cases of infectious diseases reported.

My method for disinfecting houses after infectious diseases is to use formaldehyde.

Mr. McCoy, undertaker, license 210, under my supervision does the disinfecting.

Have not been called upon to disinfect houses or rooms on account of consumption.

Lentz generator is used and eight ounces of formaldehyde to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Typhoid fever, 6; whooping cough, 30; measles, 10. Total number of infectious diseases, 46.

WILLOUGHBY, LAKE COUNTY.

Person making the report, C. C. Jenkins, Clerk of the Board of Health.

During the year the Board of Health spent \$123.40.

I do not know of any abandoned wells being used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

The sanitary conditions of our schoolhouses were not inspected.

No system is employed for the collection of garbage.

Method for disinfecting houses after infectious diseases: Spray and fumigate with formaldehyde.

Health Officer James Maloney does the work of disinfecting.

Have been called upon twice to disinfect houses or rooms on account of consumption.

WILLIAMSPORT, PICKAWAY COUNTY.

Population, 600.

Person making report, Dr. D. H. Marcy, health officer.

During the year the Board of Health spent \$48.50.

No prosecutions were had for violations of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

WILLSHIRE, VAN WERT COUNTY.

Population, 600.

Person making report, Dr. C. W. Bobo, health officer.

Amount spent by the Board of

Health during the year was \$4.50.

For violations of health laws or orders of the Board of Health there were no prosecutions.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

There are no dairies in town.

Sanitary conditions of our schoolhouses were inspected.

Everyone collects and disposes of his own garbage.

Garbage is hauled outside of the village to dumping ground.

Disinfect with formaldehyde gas generator is my method for disinfecting houses after infectious diseases.

Work of disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Generator used is the Novy, manufactured by Park, Davis & Co. Eight fluid ounces of the 60 per cent. solution per 1,000 cubic feet of air space is used.

WILMINGTON, CLINTON COUNTY.

Population, 4,000.

Person making report, Dr. A. T. Quinn, health officer.

About \$400 was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

No license issued to dairymen.

Have inspected the sanitary conditions of our schoolhouses.

We have carts for the collection of garbage, and it is hauled and disposed of in the country on farm lands.

We use sulphur and formaldehyde lamps as a method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have had no calls to disinfect houses or rooms on account of consumption.

Dr. George Leininger's generator, No. 3, is used. We use 50 ounces in two hours to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Diphtheria, 1; membranous croup, 1; typhoid fever, 2; whooping cough, 1; measles, 1. Total number of infectious diseases 6.

WINCHESTER, ADAMS COUNTY.

Population, 900.

Person making report, Dr. C. S. Corboy, health officer.

Five dollars was the amount spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

No license is required by the board to sell milk.

We have no dairy.

Inspection of the sanitary conditions of our schoolhouses was made.

We have no system for the collection of garbage.

Disposition of the garbage is made by feeding it to hogs.

Formaldehyde gas is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by the health officer.

Have not been called upon to disinfect houses or rooms on account of consumption.

Have never disinfected a house.

Four cases of typhoid fever were the only cases of infectious diseases reported.

WINDHAM, PORTAGE COUNTY.

Population, 350.

Person making report, H. J. Higley, health officer.

Ten dollars was the amount spent by the Board of Health during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage or drainage from privies or water closets.

License to sell milk is not required by the board.

An inspection of the sanitary conditions of our schoolhouses was made.

No system is employed for the collection of garbage.

Sulphur is my method for disinfecting houses after infectious diseases.

Disinfecting is done by me personally.

Have been called upon once to disinfect houses or rooms on account of consumption.

Total number of infectious diseases reported was fifteen cases of measles.

WOODSFIELD, MONROE COUNTY.

Population, 2,100.

Person making report, John Beard, health officer.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

Inspection of the sanitary conditions of our schoolhouses was made and found to be in good condition.

We have no regular system for the collection of garbage.

Garbage is disposed of by hauling it away and burning.

Close the house and use fumigators

as directed is my method for disinfecting houses after infectious diseases.

Disinfecting is looked after by the attending physician.

Have been called upon twice to disinfect houses or rooms on account of consumption.

We use Lister's fumigators. Have a lamp for burning formaldehyde. The physicians say it is not a success.

Six cases of scarlet fever and eight of typhoid fever were the only cases of infectious diseases reported.

WOODSTOCK, CHAMPAIGN COUNTY.

Population, 325.

Person making report, D. P. Smith, health officer.

Nothing was spent by the Board of Health during the year.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

The garbage is collected and disposed of in a gravel pit two miles from town.

Sulphur and formaldehyde gas are used for disinfecting houses after infectious diseases.

Dr. D. W. Sharp does the work of disinfecting.

On account of consumption I have never been called upon to disinfect houses or rooms.

Do not know the name of the apparatus used.

Total number of infectious diseases were three cases of scarlet fever.

WREN, VAN WERT COUNTY.

Population, 300.

Person making report, P. G. Havice, health officer.

Fifteen dollars was the amount spent by the Board of Health.

There were no prosecutions for violations of health laws or orders of the Board of Health.

Abandoned wells are not used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is not required by the board.

The sanitary conditions of our schoolhouses were inspected and found to be in good condition.

We have no system for the collection of garbage.

Formaldehyde is my method for disinfecting houses after infectious diseases.

The work of disinfecting is done by me personally.

Have never been called upon to disinfect houses or rooms on account of consumption.

WYOMING, HAMILTON COUNTY.

Population, 1,800.

Person making report George Stoddard, health officer.

Amount spent by the Board of Health during the year, \$143.85.

There were no prosecutions for violations of health laws or orders of the Board of Health.

There are no abandoned wells used to receive house drainage, or drainage from privies or water closets.

Board requires no license to sell milk.

We have a standing committee for the purpose of inspecting the sanitary conditions of our schoolhouses, and

their report is embodied in mine to council.

Garbage is gathered regularly and disposed of by hauling out to farms.

Our method of disinfecting is to use the formaldehyde machine.

The work of disinfecting is done by the sanitary officer.

Have never been called upon to disinfect houses or rooms on account of consumption.

Do not know the name of generator used nor the amount of formaldehyde. The sanitary officer attends to it.

Two cases of scarlet fever were the only cases of infectious diseases reported.

XENIA, GREENE COUNTY.

Population, (1900) 8,696.

Person making report, Dr. L. H. Brundage, health officer.

Board of Health spent \$1,838.96 during the year.

No prosecutions were had for violations of health laws or orders of the Board of Health.

No abandoned wells are used to receive house drainage, or drainage from privies or water closets.

The board does not require a license to sell milk.

Sanitary conditions of our schoolhouses were inspected.

Have no system for the collection of garbage.

Disposition of the garbage is made by carting to public dump.

My method for disinfecting houses after infectious diseases is to use formaldehyde.

Sanitary officer does the work of disinfecting.

During the last year I have been called upon three times to disinfect houses or rooms on account of consumption.

West Disinfecting Co.'s generator is used, and one pound of formaldehyde

to 1,000 cubic feet of air space.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 1; scarlet fever, 5; other infectious diseases, 1. Total number of infectious diseases, 12.

YOUNGSTOWN, MAHONING COUNTY.

Population, estimated, 60,000; U. S. census, 1900, 44,800.

Person making report, Dr. H. E. Welch, health officer.

Following amount was spent by the Board of Health during the year: General administration, \$1,174.02; sanitary, \$4,779.68; inspection of foods, \$933; quarantine, \$1,814.14; detention hospital, \$6,116.99.

During the last year there were no prosecutions instituted for violations of health laws or orders of the Board of Health.

Practice of using abandoned wells to receive house drainage, or drainage from privies or water closets is not permitted with our knowledge.

To sell milk no license is required by the board.

The sanitary conditions of our schoolhouses are inspected as required by statutes.

No system is employed for the collection of garbage. Private companies and individuals gather the garbage and collect for themselves their remuneration.

Disposition of the garbage is made by incineration. We have a Dixon garbage furnace, which has been successfully operated for a number of years.

In a warm, tightly closed room we spray the 40 per cent. formaldehyde upon a sheet as a method for disinfecting houses after infectious diseases.

Disinfecting is done by the sanitary officer.

Had three houses to disinfect on account of consumption.

A spraying bottle made by J. H. Rhodes & Co., Chicago, is used, and

about eight ounces of formaldehyde to each 1,000 cubic feet of air space.

Would suggest a better merit system for employes of health boards, placing them upon an equal footing with police and firemen. Power to health boards to declare, before they exist, what are nuisances. A better law to secure "birth returns."

During the year the following cases of infectious diseases were reported: Smallpox, 155; diphtheria, 140; scarlet fever, 64; typhoid fever, 130; whooping cough, 4; measles, 361. Total number of infectious diseases, 854.

ZANESVILLE, MUSKINGUM COUNTY.

Population, about 28,000; in 1900, 23,538.

Person making report, W. C. Bateman, health officer and secretary.

The amounts spent by the Board of Health during the year were: Paid from health fund, \$3,144.64; paid for erecting and equipping pesthouse, \$3,442.54; expense of pesthouse, \$435.38.

For violations of health laws or orders of the Board of Health, the following prosecutions were had: For dumping foul refuse in city limits, 2; for draining cesspool into public alley, 1. All parties were convicted. At our request the State Food Inspector prosecuted two milk venders for selling impure milk, with convictions in both cases.

Not to my knowledge are abandoned wells used to receive house drainage, or drainage from privies or water closets.

A license to sell milk is required by the board.

The dairy is inspected before giving the license.

I have inspected the sanitary conditions of our schoolhouses, as I was a member of the Board of Education and serving on the building committee.

Garbage is collected in wagons and hauled out of the city.

The garbage is disposed of by feeding to hogs where it is fit, and by burial of foul matter and filling with other material.

My method for disinfecting houses after infectious diseases is to use a formaldehyde generator.

The work of disinfecting is done part of the time by me and part of the time by the sanitary officer.

Since July 1, 1904, I have been called upon twice to disinfect houses or rooms on account of consumption.

Generator manufactured by West Disinfecting Co., and the machine is marked with gauge for each 1,000 cubic feet.

I would suggest sending a circular letter to physicians requiring them to report typhoid fever in all cases; also the fumigation (compulsory) of all houses where a consumptive dies.

The following cases of infectious diseases were reported during the year: Smallpox, 28; diphtheria, 7; membranous croup, 1; scarlet fever, 29; typhoid fever, 27. Total number of infectious diseases, 92.

ANNUAL REPORT OF TOWNSHIP BOARDS OF HEALTH.

There are 1,352 township boards of health in the state: That is, the law provides that the three trustees of the township shall constitute a board of health for the township, such board to have all the powers and duties of boards of health of cities and villages. In a considerable number of townships the trustees have taken no action as a board of health.

The following list of questions was sent to the clerk of each township board of health:

1. Has your board of health appointed a health officer, as required by section 2117? If so give his name and address.

2. How much is paid the health officer annually?

3. How many meetings has the board held during the year?

4. Give number and character of nuisances abated by the board.

5. Does your board issue permits for the burial and removal of all dead bodies?

6. How many cases of contagious diseases were quarantined by your board?

7. Have attending physicians failed to report contagious diseases?

8. Has the board brought any prosecutions during the year?

9. If so, for what cause and with what result?

10. Give estimated number of persons in the township who were vaccinated during the year.

11. What amount of money was spent exclusively for board of health purposes?

12. What suggestions have you to offer for increasing the efficiency of township boards of health?

13. Give name of any officer or member of the board who can be communicated with by telephone.

Reports were received from 1,025, or 75.8 per cent. of the entire number.

Only a summary of these reports can be published, but this will fairly indicate the amount of sanitary work being done in the rural districts.

TOWNSHIP HEALTH OFFICERS.

Eight hundred and forty-eight of the 1,025 boards reporting have appointed a health officer.

MEETINGS OF THE BOARDS.

Seven hundred and thirteen of the boards reporting held meetings during the year.

NUISANCES ABATED.

Five hundred and sixty-six nuisances were reported abated by 118 different boards of health.

CONTAGIOUS DISEASES REPORTED.

The contagious or infectious diseases reported were as follows: Smallpox, 1,549 cases in 181 townships; diphtheria, 666 cases in 186 townships; scarlet fever, 1,002 cases in 268 townships; typhoid fever, 575 cases in 94 townships; whooping cough, 358 cases in 34 townships, and measles, 1,177 cases in 78 townships.

PHYSICIANS' REPORTS OF CONTAGIOUS DISEASES.

In 137 townships physicians failed to report cases of contagious diseases.

PROSECUTIONS.

Six boards brought prosecutions during the year.

VACCINATIONS.

Eleven thousand, seven hundred and ninety-two persons (estimated) were vaccinated in 201 townships.

MONEY SPENT FOR BOARD OF HEALTH PURPOSES.

Only 583 township boards of health reported an expenditure of money for sanitary purposes. The amount spent was \$61,490.73, an average of about \$105.47 for each township. The largest amount spent in any one township was \$7,430. Most of this sum was spent in combating smallpox. The least amount spent was twenty-five cents.

On the whole it must be admitted that sanitary matters in rural districts are not receiving such attention as they deserve.

ABSTRACTS OF REPORTS
OF
DEATHS AND THEIR CAUSES
DURING 1904

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

STATE BOARD OF HEALTH.

557

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

AND THEIR CAUSES DURING 1904.

Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Menigitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
1	1	1	15	1	91	23	52	295	23	20	10	14	18	47	10	50	76	57	52	
6	6	1	6	18	128	19	19	228	6	1	1	6	6	17	10	10	19	19	19	
1	1	1	4	4	433	16	16	125	9	10	10	9	1	10	17	58	21	26	16	
1	1	1	1	1	42	4	14	138	4	12	12	8	5	18	9	29	3	15	26	
33	33	1	2	2	6	4	4	2	1	5	1	1	312	12	4	1	3	5	4	
1	1	1	9	11	15	2	9	43	1	1	2	2	11	18	3	1	12	5	10	
26	26	5	270	4	20	20	19	22	10	14	6	13	31	35	1	27	32	25	29	
6	15	5	221	7	1,349	20	31	3,481	339	399	270	73	31	659	166	842	708	390	366	
1	1	1	185	2	381	596	284	596	35	206	244	34	39	377	94	143	635	406	413	
1	3	1	17	3	1,016	51	610	2,906	51	244	148	331	86	182	49	193	689	465	158	
1	1	1	1	1	18	54	66	54	6	51	19	34	3	12	3	7	7	9	5	
1	1	1	1	1	40	11	176	648	80	81	14	21	48	155	33	101	44	75	123	
1	1	1	1	1	35	15	6	6	4	4	4	1	5	11	1	17	4	14	15	
3	2	1	1	1	31	21	21	124	11	5	5	1	10	11	1	15	6	18	25	
1	1	1	1	1	42	31	31	164	12	12	12	1	12	23	4	13	16	12	15	
1	1	1	1	1	18	16	6	355	3	128	5	5	12	19	1	8	8	8	10	
3	2	1	1	1	28	25	5	299	4	4	4	1	12	12	1	18	11	11	4	
1	1	1	1	1	13	6	6	32	1	1	1	1	1	1	1	5	5	3	1	
1	1	1	1	1	94	42	19	38	17	23	4	14	10	7	21	55	11	42	29	
1	1	1	10	4	37	20	20	81	1	1	3	1	2	17	16	16	12	12	9	
1	2	3	3	5	42	19	19	54	5	6	6	1	5	15	3	13	1	1	19	
1	1	1	1	1	59	11	31	267	15	23	6	7	8	52	16	13	31	35	30	
1	1	1	1	1	40	23	23	94	12	6	4	10	10	16	9	19	37	27	37	
1	1	1	1	1	57	11	19	103	10	6	4	1	5	33	1	28	45	15	9	
1	1	1	4	10	24	8	14	91	8	3	5	1	6	19	15	10	28	10	20	
1	1	1	4	4	35	12	23	102	4	4	4	3	6	4	4	10	12	10	15	
1	1	1	1	1	28	3	25	56	3	5	3	3	6	10	1	16	11	10	11	
1	1	1	1	1	28	11	16	64	14	4	3	7	1	17	6	12	14	14	14	
1	1	1	1	1	25	3	20	56	10	6	5	1	2	13	5	14	14	6	11	
3	3	2	1	1	13	3	9	51	8	5	5	1	1	13	3	5	5	5	5	
1	1	1	2	4	23	3	10	24	1	1	1	2	9	7	3	24	31	33	21	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51	10	6	3	3	5	4	13	4	8	12	4	11	
1	1	1	1	1	10	5	5	31	7	7	7	2	4	13	3	17	20	8	2	
3	3	1	16	1	35	9	23	75	4	8	9	4	5	22	7	1	12	18	7	
1	1	1	1	1	80	8	46	113	4	6	9	4	8	27	4	23	17	17	27	
1	1	1	1	1	13	4	9	35	4	3	3	2	6	6	1	4	4	6	9	
1	1	1	1	1	26	4	7	25	2	10	3	3	12	9	1	8	9	9	7	
1	1	1	1	1	43	13	9	129	25	5	5	14	14	31	1	14	39	21	20	
1	1	1	1	1	23	3	9	51	7	1	1	6	13	47	12	6	5	5	5	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51	10	6	3	3	5	4	13	4	8	12	4	11	
1	1	1	1	1	10	5	5	31	7	7	7	2	4	13	3	17	20	8	2	
3	3	1	16	1	35	9	23	75	4	8	9	4	5	22	7	1	12	18	7	
1	1	1	1	1	80	8	46	113	4	6	9	4	8	27	4	23	17	17	27	
1	1	1	1	1	13	4	9	35	4	3	3	2	6	6	1	4	4	6	9	
1	1	1	1	1	26	4	7	25	2	10	3	3	12	9	1	8	9	9	7	
1	1	1	1	1	43	13	9	129	25	5	5	14	14	31	1	14	39	21	20	
1	1	1	1	1	23	3	9	51	7	1	1	6	13	47	12	6	5	5	5	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51	10	6	3	3	5	4	13	4	8	12	4	11	
1	1	1	1	1	10	5	5	31	7	7	7	2	4	13	3	17	20	8	2	
3	3	1	16	1	35	9	23	75	4	8	9	4	5	22	7	1	12	18	7	
1	1	1	1	1	80	8	46	113	4	6	9	4	8	27	4	23	17	17	27	
1	1	1	1	1	13	4	9	35	4	3	3	2	6	6	1	4	4	6	9	
1	1	1	1	1	26	4	7	25	2	10	3	3	12	9	1	8	9	9	7	
1	1	1	1	1	43	13	9	129	25	5	5	14	14	31	1	14	39	21	20	
1	1	1	1	1	23	3	9	51	7	1	1	6	13	47	12	6	5	5	5	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51	10	6	3	3	5	4	13	4	8	12	4	11	
1	1	1	1	1	10	5	5	31	7	7	7	2	4	13	3	17	20	8	2	
3	3	1	16	1	35	9	23	75	4	8	9	4	5	22	7	1	12	18	7	
1	1	1	1	1	80	8	46	113	4	6	9	4	8	27	4	23	17	17	27	
1	1	1	1	1	13	4	9	35	4	3	3	2	6	6	1	4	4	6	9	
1	1	1	1	1	26	4	7	25	2	10	3	3	12	9	1	8	9	9	7	
1	1	1	1	1	43	13	9	129	25	5	5	14	14	31	1	14	39	21	20	
1	1	1	1	1	23	3	9	51	7	1	1	6	13	47	12	6	5	5	5	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51	10	6	3	3	5	4	13	4	8	12	4	11	
1	1	1	1	1	10	5	5	31	7	7	7	2	4	13	3	17	20	8	2	
3	3	1	16	1	35	9	23	75	4	8	9	4	5	22	7	1	12	18	7	
1	1	1	1	1	80	8	46	113	4	6	9	4	8	27	4	23	17	17	27	
1	1	1	1	1	13	4	9	35	4	3	3	2	6	6	1	4	4	6	9	
1	1	1	1	1	26	4	7	25	2	10	3	3	12	9	1	8	9	9	7	
1	1	1	1	1	43	13	9	129	25	5	5	14	14	31	1	14	39	21	20	
1	1	1	1	1	23	3	9	51	7	1	1	6	13	47	12	6	5	5	5	
1	1	1	1	1	53	13	31	167	21	10	8	2	1	31	19	1	4	31	25	
1	1	1	1	1	12	4	53	8	2	3	3	6	14	14	15	3	11	3	3	
1	1	1	1	1	19	12	17	55	9	19	1	1	7	8	4	1	7	9	3	
5	5	3	3	3	14	10	51													

ABSTRACT OF THE REPORTS OF DEATHS

Cities over 5,000 Population. Census 1900.	Estimated Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Washington C. H. . .	5,756	76	13.20	8	4	12	...	...	1	...	...	1	...	...
Wellston	9,513	71	7.46	4	...	11	...	...	6	...	4	...	...	...
Wellsville	6,506	110	16.91	20	16	38	...	19	11	...	1	...	...	1
Wooster	6,144	...	...	...	...	...	...	...	...	...	...	...	...	...
Xenia	9,136	150	16.42	15	5	8	...	...	...	...	...	...	...	...
Youngstown	50,081	949	18.95	166	70	182	26	40	16	4	...	1	6	...
Zanesville	24,550	430	17.52	50	29	49	2	10	3	1	...	1	1	...
Total	1,949,870	30,017	15.39	5,109	2,592	4,640	385	392	179	36	1,180	151	34	137

AND THEIR CAUSES DURING 1904.—Concluded.

Puerperal Fever.	68	1	3	...	...	...	...	...
Scarlet Fever.	78	1	3	...	...	...	...	...
Tonsillitis.	6	...	...	...	...	...	...	...
Typhoid Fever.	1,096	4	4	...	...	6	...	...
Whooping Cough.	68	4	...	...	...	1	...	...
Total Constitutional Diseases.	5,660	140	42	...	...	30	...	...
Cancer.	1,143	16	15	...	...	8	...	...
Phthisis Pulmonalis.	3,290	44	70	...	...	12	...	...
Total Local Diseases.	13,681	199	510	...	...	42	...	...
Apoplexy.	1,167	27	25	...	...	5	...	...
Bright's Disease.	1,263	19	10	...	...	6	...	...
Bronchitis.	647	4	18	...	...	1	...	...
Convulsions.	728	3	15	...	...	...	...	...
Gastritis and Peritonitis.	491	21	3	...	...	...	...	...
Heart Disease.	2,542	40	20	...	...	...	...	...
Meningitis.	637	6	...	...	...	...	...	...
Pleurisy.	74	...	1	...	...	...	...	...
Pneumonia.	2,933	49	21	...	...	6	...	...
Total Developmental Diseases.	2,431	31	31
Total Violence.	1,984	40	57
Premature and Still Births.	2,083	12	95

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ABSTRACT OF THE REPORTS OF DEATHS

Villages.	Estimated Population	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Cedarville	1,500	16	6.67	2	1	2	1	1	1					
Celina	3,800	29	7.63	1	3	2	1	1						
Centerville	300	5	16.67								1			
Chagrin Falls	1,700	14	8.24											
Chester Hill	500	5	10.00	1	1	1								
Cheviot	900	9	10.00	3	1	1								
Chicago Junction	3,000	7	2.33			3								
Clarington	900	11	12.22	2	1	1								
Clarksburg	551	2	3.63	1							1			
Clarksville	450	4	8.88			1							1	
Cleveland Heights	2,000	6	3.00											
Cleves	1,500	42	28.00	17	8	11	4		1	1	1			2
Clyde	3,000	29	9.67	3		3								
Columbus Grove	2,000	23	11.00		12	3	1							
Congress	200	3	15.00											
Convoy	600	9	15.00	1	1									
Corning	1,000	13	6.50	3	1	3			1					
Cortland	800	11	13.75											
Covington	12,000	29	14.50	3	4	5	2							
Crestline	3,500	52	14.86	4	3	8						1		1
Creston	1,000	10	10.00	2										
Cridersville	650	6	9.08			1								
Croton	375	6	16.00											
Cumberland	670	9	13.43											
Custar	350	4	5.71											
Cuyahoga Falls	3,500	45	12.86	8	3									
DeGraff	1,200	12	10.00											
Delhi	700	7	10.00	1										
Dell Roy	600	3	5.00											
Delphos	4,517	57	12.62	4		8								
Dennison	4,000	40	10.00	8	1	8		3			1	1		
Deshler	2,000	8	4.00		1	1			1					
Dexter City	400	2	5.00											
Dillonvale	2,000	35	17.50	4	14	16	10		3	1			1	
Dresden	1,600	16	10.00		3									
Dublin	400	1	2.50											
Dunkirk	1,500	5	3.33			2		1					1	
Dupont	500	6	12.00	2	1	1								1
East Cleveland	6,000	20	3.33											
East Palestine	2,500	40	16.00	4	2	5			1					
East Springfield	200	3	15.00	1										
Eaton	3,200	7	2.19			3	1							
Edgerton	1,040	20	19.23											
Edon	900	17	18.80			4			1					
Eldorado	358	9	25.03											
Elmore	1,025	16	15.61	1	1				1					
Elmwood Place	2,532	28	11.06	3	2	5								
Fairport Harbor	2,300	26	11.30	1		6		4						
Fairview	300	5	16.67			1				1				
Farmersville	520	7	13.46											
Fayette	900	11	12.22	1	1									
Felicity	635	12	17.27											
Fern Bank	300	1	3.33											
Fowler	800	8	10.00			1	1							
Frankfort	750	8	10.67						1					
Franklin	2,724	19	6.98			2			1					
Frazesburg	730	6	8.22	1		1			1					
Fredericktown	1,000	15	15.00		1									
Gambier	700	3	4.29			1			1					
Garrettsville	1,200	2	1.67											
Geneva	2,350	34	14.47			2			1				1	
Germantown	2,000	24	12.00						1					
Gibsonburg	2,000	21	10.50	4										
Girard	3,500	27	7.71	9	1	6		5						
Glendale	1,545	22	14.24			2		1						

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ABSTRACT OF THE REPORTS OF DEATHS

Villages.	Estimated Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Glenmont	200	2	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glouster	2,155	10	4.64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gordon	300	6	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grafton	1,200	5	4.17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Rapids	600	12	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green Camp	400	4	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green Spring	816	14	17.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greenwich	1,000	22	22.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grove City	800	14	17.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Groveport	600	5	8.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hanlon	600	6	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hanging Rock	600	6	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hanoverton	400	8	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harrisburg	254	4	15.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harrison	2,200	17	7.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harrod	400	7	17.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hartwell	2,500	20	8.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haskins	369	4	10.84	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebron	500	14	28.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hicksville	3,000	9	3.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Higginsport	600	9	8.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hilliards	400	6	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hillsboro	4,535	41	9.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hollansburg	475	3	6.31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Holmesville	302	5	16.56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hopedale	500	9	18.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hoytville	400	2	5.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hubbard	1,230	6	4.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Huron	1,800	27	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ithaca	200	4	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson	6,800	62	9.12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson Center	800	2	2.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jacksonville	1,150	25	21.74	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jamestown	1,205	27	22.41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jeffersonville	900	11	12.22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jenera	276	1	3.62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Junction City	600	5	8.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kalida	800	8	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kelley's Island	1,174	9	7.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kent	4,500	79	17.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kossuth	150	3	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lakeside	300	2	6.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lakewood	5,000	38	7.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Larue	1,000	15	15.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Latty	400	1	2.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laura	400	5	12.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laurelville	500	10	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lebanon	3,000	48	16.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leesville	269	3	11.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leetonia	3,000	44	14.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewisburg	600	1	1.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewisville	175	6	34.28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lithopolis	360	5	13.89	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lockbourne	325	3	9.23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lockland	2,900	42	14.48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lodi	1,200	17	14.17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Logan	4,100	49	11.76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
London	4,000	34	8.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Loudonville	1,900	22	11.58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisville	1,500	16	10.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Loveland	1,500	16	10.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lowell	500	4	8.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lowellville	1,800	11	6.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lucas	350	6	17.14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
McComb	1,565	12	7.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

ABSTRACT OF THE REPORTS OF DEATHS

Villages.	Estimated Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Corebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
McConnellsville	1,900	24	12.63	12	12	12	1	1	1	1	1	1	1	1
Macksburg	600	4	6.67	4	4	4	1	1	1	1	1	1	1	1
Madison	850	17	20.00	17	17	17	1	1	1	1	1	1	1	1
Madisonville	4,000	59	14.75	59	59	59	1	1	1	1	1	1	1	1
Magnolia	800	16	20.00	16	16	16	1	1	1	1	1	1	1	1
Malvern	1,000	7	7.00	7	7	7	1	1	1	1	1	1	1	1
Martinsville	400	11	27.50	11	11	11	1	1	1	1	1	1	1	1
Maumee	12,500	18	7.20	18	18	18	1	1	1	1	1	1	1	1
Mechanicsburg	1,700	50	29.41	50	50	50	1	1	1	1	1	1	1	1
Medina	2,300	44	19.13	44	44	44	1	1	1	1	1	1	1	1
Melrose	450	15	33.33	15	15	15	1	1	1	1	1	1	1	1
Mendon	589	5	8.35	5	5	5	1	1	1	1	1	1	1	1
Mentor	900	11	12.22	11	11	11	1	1	1	1	1	1	1	1
Miamisburg	4,500	43	9.55	43	43	43	1	1	1	1	1	1	1	1
Middleburg	300	12	6.67	12	12	12	1	1	1	1	1	1	1	1
Middleport	3,300	47	14.24	47	47	47	1	1	1	1	1	1	1	1
Midland	380	12	5.26	12	12	12	1	1	1	1	1	1	1	1
Milford	1,200	23	19.17	23	23	23	1	1	1	1	1	1	1	1
Milford Center	682	12	10.26	12	12	12	1	1	1	1	1	1	1	1
Millbury	300	12	6.67	12	12	12	1	1	1	1	1	1	1	1
Millersburg	1,988	23	11.61	23	23	23	1	1	1	1	1	1	1	1
Mineral Ridge	1,130	8	7.08	8	8	8	1	1	1	1	1	1	1	1
Minerva	1,300	16	12.31	16	16	16	1	1	1	1	1	1	1	1
Mingo Junction	3,800	5	1.32	5	5	5	1	1	1	1	1	1	1	1
Minster	1,600	13	8.12	13	13	13	1	1	1	1	1	1	1	1
Morristown	352	7	19.89	7	7	7	1	1	1	1	1	1	1	1
Morrow	869	12	13.81	12	12	12	1	1	1	1	1	1	1	1
Mt. Blanchard	635	4	6.30	4	4	4	1	1	1	1	1	1	1	1
Mt. Gilead	1,700	16	9.41	16	16	16	1	1	1	1	1	1	1	1
Mt. Healthy	1,354	15	11.08	15	15	15	1	1	1	1	1	1	1	1
Mt. Orab	700	8	11.43	8	8	8	1	1	1	1	1	1	1	1
Mt. Pleasant	650	1	1.54	1	1	1	1	1	1	1	1	1	1	1
Mt. Sterling	1,200	10	8.33	10	10	10	1	1	1	1	1	1	1	1
Mt. Washington	800	11	13.75	11	11	11	1	1	1	1	1	1	1	1
Murray City	1,500	22	14.67	22	22	22	1	1	1	1	1	1	1	1
Napoleon	5,000	25	5.00	25	25	25	1	1	1	1	1	1	1	1
Navarre	1,050	5	4.76	5	5	5	1	1	1	1	1	1	1	1
Nevada	1,000	4	4.00	4	4	4	1	1	1	1	1	1	1	1
Neville	265	1	3.77	1	1	1	1	1	1	1	1	1	1	1
New Bremen	1,500	15	10.00	15	15	15	1	1	1	1	1	1	1	1
New Comerstown	3,500	52	14.86	52	52	52	1	1	1	1	1	1	1	1
New Concord	800	12	15.00	12	12	12	1	1	1	1	1	1	1	1
New Lebanon	180	2	11.11	2	2	2	1	1	1	1	1	1	1	1
New Lexington	2,200	13	6.00	13	13	13	1	1	1	1	1	1	1	1
New London	1,500	27	18.00	27	27	27	1	1	1	1	1	1	1	1
New Madison	800	2	2.50	2	2	2	1	1	1	1	1	1	1	1
New Matamoras	800	21	26.25	21	21	21	1	1	1	1	1	1	1	1
New Richmond	2,000	53	26.50	53	53	53	1	1	1	1	1	1	1	1
New Riegel	300	7	23.33	7	7	7	1	1	1	1	1	1	1	1
New Straitsville	2,400	25	10.42	25	25	25	1	1	1	1	1	1	1	1
Newton Falls	830	5	6.02	5	5	5	1	1	1	1	1	1	1	1
New Waterford	800	1	1.25	1	1	1	1	1	1	1	1	1	1	1
New Weston	318	5	15.72	5	5	5	1	1	1	1	1	1	1	1
Ney	400	3	7.50	3	3	3	1	1	1	1	1	1	1	1
North Amherst	1,765	25	14.16	25	25	25	1	1	1	1	1	1	1	1
North Baltimore	3,600	43	11.94	43	43	43	1	1	1	1	1	1	1	1
North Lewisburg	846	13	15.37	13	13	13	1	1	1	1	1	1	1	1
North Robinson	160	3	18.75	3	3	3	1	1	1	1	1	1	1	1
Nottingham	1,200	15	12.50	15	15	15	1	1	1	1	1	1	1	1
Oak Hill	1,100	21	19.09	21	21	21	1	1	1	1	1	1	1	1
Oakley	750	5	6.67	5	5	5	1	1	1	1	1	1	1	1
Oakwood	375	1	2.67	1	1	1	1	1	1	1	1	1	1	1
Oberlin	4,082	56	13.72	56	56	56	1	1	1	1	1	1	1	1
Olmsted Falls	413	4	9.69	4	4	4	1	1	1	1	1	1	1	1
Orangeville	400	6	15.00	6	6	6	1	1	1	1	1	1	1	1

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Orrville	2,000	26	13.00	3	...	12	...	1
Osborn	998	3	3.01
Osnaburg	560	10	17.86
Ostrander	401	9	22.44
Ottawa	2,500	12	4.80	3	...	5	...	...	...	...	...	...	...	...
Ottoville	200	9	45.00	3	1	...	...	...	...	...	...	...	...	1
Oxford	2,300	29	12.61	...	...	13	...	...	...	...	...	...	...	...
Pemberville	1,200	13	10.83	...	...	1	...	...	...	...	1	...	...	...
Perrysburg	1,780	26	14.61	5	12	...	1	...	...	...	...	...	...	...
Philo	543	9	16.57	...	...	12	...	...	...	...	...	...	...	...
Pioneer	603	4	6.63	1	1	...	...	...	...	...	...	...	...	...
Plain City	1,800	22	12.22	12	1	12	...	1	...	...	...	...	...	...
Plainfield	210	5	23.81	...	...	1	...	...	...	...	...	...	...	...
Pleasant Hill	700	6	8.57	...	...	...	...	...	...	...	...	...	...	...
Pleasant Ridge	1,200	19	15.83	...	...	...	...	...	...	...	...	...	...	...
Pleasantville	500	8	16.00	...	1	...	...	...	...	...	...	...	...	...
Plymouth	1,170	9	7.69	...	...	1	...	...	...	...	...	...	...	...
Poland	400	4	10.00	...	...	...	...	...	...	...	...	...	...	...
Pomerooy	4,800	52	10.83	3	4	12	...	...	1	...	1	...	...	2
Port Jefferson	400	5	12.50	...	...	1	...	...	1	...	...	...	...	...
Prospect	1,100	16	14.55	1	2	6	...	...	12	...	...	...	...	...
Put-in-Bay	250	5	20.00	1	...	1	...	...	...	...	...	...	...	...
Quaker City	950	10	10.53	...	...	...	...	...	...	...	...	...	...	...
Quincy	800	8	10.00	...	...	...	...	...	...	...	...	...	...	...
Racine	600	7	11.67	...	...	1	...	...	...	...	...	1	...	...
Rarden	443	11	24.83	...	...	10	6	...	...	...	...	...	...	...
Ravenna	4,500	71	15.78	4	...	17	...	3	1	1	1	...	...	2
Rawson	550	1	1.82	...	...	...	...	...	...	...	...	...	...	...
Reading	3,500	45	12.83	7	3	4	...	12	1	...	...	...	...	...
Republic	580	7	12.07	...	...	...	...	...	...	...	...	...	...	...
Reynoldsburg	339	5	14.75	...	...	12	1	1	...	...	...	...	...	...
Richmond	500	12	4.00	...	1	...	...	...	...	...	...	...	...	...
Ridgeway	500	3	6.00	...	...	...	...	...	...	...	...	...	...	...
Rockport	2,400	24	10.00	...	...	5	2	...	...	...	...	...	...	...
Rocky River	1,440	13	9.03	2	1	3	1	...	...	...	...	...	...	...
Roseville	1,207	6	4.97	4	1	3	...	...	...	...	...	...	...	1
Rossville	315	2	6.35	...	1	1	...	...	...	...	...	...	...	...
Rushville	400	3	7.50	...	...	...	...	...	...	...	...	...	...	...
Rushsylvania	600	3	3.33	...	...	...	...	...	...	...	...	...	...	...
Sabina	1,800	21	11.67	3	5	6	...	3	...	...	...	...	...	...
St. Bernard	3,500	19	5.43	...	...	1	...	...	...	...	...	...	...	...
St. Clairsville	1,210	23	19.01	3	...	6	2	12	1	...	...	...	...	...
St. Johns	350	1	2.86	...	...	1	1	...	...	...	...	...	...	...
St. Louisville	400	2	5.00	...	...	...	...	...	...	...	...	...	...	...
St. Paris	1,400	12	8.43	...	1	12	1	...	...	...	...	...	...	...
Salesville	232	4	17.24	...	...	...	...	...	...	...	...	...	...	...
Salineville	3,000	31	10.33	...	...	3	2	...	...	...	...	...	...	...
Savannah	400	5	12.50	...	...	...	...	...	...	...	...	...	...	...
Scio	1,350	17	12.59	1	...	2	...	2	...	...	...	...	...	...
Sebring	1,800	15	8.33	...	1	...	...	...	...	...	...	...	...	...
Senecaville	700	1	1.43	2	...	...	...	...	...	...	...	...	...	...
Shawnee	3,000	22	7.33	4	...	19	3	3	1	...	...	1	...	...
Shelby	4,700	51	10.85	3	7	12	3	3	3	...	...	...	...	...
Sherodsville	1,500	19	12.67	6	4	14	6	5	1	...	...	...	...	...
Shreve	1,130	14	12.39	2	...	1	...	...	...	...	...	...	...	...
Smithville	500	7	14.00	...	...	...	...	...	...	...	...	...	...	...
Somerset	1,100	8	7.27	...	...	1	...	...	...	...	...	...	...	...
Somerville	375	4	10.67	...	...	...	...	...	...	...	...	...	...	...
South Brooklyn	3,500	16	4.57	4	2	5	...	1	...	2	...	...	1	...
South Charleston	1,098	21	19.13	2	...	1	...	...	...	...	...	1	...	...
Spencerville	2,600	16	6.15	...	...	2	...	...	...	...	...	...	...	...
Springboro	500	14	28.00	...	...	...	...	...	...	...	...	...	...	...
Spring Valley	650	8	12.31	...	...	2	...	...	1	...	...	...	...	...
Strasburg	800	9	11.25	...	3	1	...	...	...	...	...	...	...	...
Struthers	1,500	21	14.00	4	...	11	2	5	2	...	...	1	1	...

AND THEIR CAUSES DURING YEAR 1904—Continued.

Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
1			1		5		5	15	1	1		1		5				2		1
					3	1	1	3	1	1				1			1	1		1
					3	1	1	6	1	1							1	1		1
					3		3	7	1	1							1	1		1
					3		3	9	1	1							1	1		1
					6	1	5	11	2	1				3			1	1		1
					5		5	5	1	1				1			1	1		1
					15	1	7	19	3	1				2			7	6		8
					4	2	1	6	2	1				1			1	2		4
					6	2	3	3	3	3				2			3	2		3
					3	1	3	2	2	1				1			1	1		3
					20	4	13	21	1	2				7			7	5		4
					11	1	4	19	1	2				3			6	1		8
					5	1	3	13	3	1				2			3	1		3
					2	1	2	3	3	1				1			1	3		2
					4	2	2	10	6	1				3			1	1		1
					2		2	1	1	3				1			1	3		3
					1		1	3	3	2				4			2	2		2
					3	2	3	14	11	3				3			5	1		1
					7	2	3	3	1	1				1			3	3		3
					8	1	4	4	5	2				1			3	1		6
					2	1	1	4	3	2				4			1	3		3
					5		3	1	1	1				1			3	4		4
					18	3	12	30	7	5				1			1	2		5
					10	3	12	27	2	1				1			2	2		2
					3	1	3	4	4	1				2			4	1		1
					9	4	5	11	5	1				3			3	5		1
					4	4	4	6	4	1				2			3			1
					2	1	1	4	1	1				2			3			1

ABSTRACT OF THE REPORTS OF DEATHS

Villages.	Estimated Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Stryker	1,206	9	7.46	...	...	1	1	...	...	...	...	...	...	...
Sugar Creek	400	1	2.50	...	...	1	...	...	...	...	...	...	...	...
Sugar Grove	400	1	2.50	...	...	1	...	...	...	...	...	...	...	...
Sycamore	850	7	8.24	...	...	1	...	...	...	...	...	...	...	...
Sylvania	617	5	8.10	...	...	...	...	...	...	...	...	...	...	...
Thornville	500	2	4.00	...	...	...	...	...	...	...	...	...	...	...
Tippecanoe City	2,000	25	12.50	...	...	...	...	...	...	...	...	...	...	...
Tiro	350	5	14.29	...	...	...	...	...	...	...	...	...	...	...
Tontogany	360	4	11.11	...	...	1	...	...	...	...	...	...	...	...
Toronto	3,526	15	4.25	3	...	...	...	...	...	...	...	...	...	...
Trenton	550	7	12.73	1	...	1	...	...	...	...	...	...	...	...
Trimble	800	47	58.75	3	...	42	...	3	...	...	...	...	...	...
Trotwood	400	3	7.50	...	...	...	...	...	...	...	...	...	...	...
Tuscarawas	500	6	12.00	...	...	...	...	...	...	...	...	...	...	...
Uhrichsville	5,000	38	7.60	4	2	3	1	...	1	...	...	...	...	...
Union City	2,000	27	13.50	3	4	7	1	2	...	...	...	1	...	...
Unionville Center	300	1	3.33	...	...	...	...	...	...	...	...	...	...	...
Unionville	500	4	8.00	...	...	...	...	...	...	...	...	...	...	...
Utica	823	18	21.79	...	1	5	...	...	...	...	...	...	...	...
Van Buren	400	4	10.00	...	...	...	...	...	...	...	...	...	...	...
Vandalia	350	7	20.00	...	...	2	...	...	...	...	...	...	...	...
Vermilion	1,184	20	16.89	2	...	...	...	...	...	...	...	...	...	...
Versailles	1,506	25	16.67	4	...	6	...	...	...	...	...	...	...	...
Vienna Cross Roads	546	7	12.82	1	1	1	...	1	...	...	...	...	...	...
Wadsworth	2,000	49	24.50	7	3	7	1	1	...	...	...	...	...	...
Waldo	300	3	10.00	1	...	...	...	...	...	...	...	...	...	...
Wapakoneta	5,000	50	10.00	11	9	10	1	2	1	1	...	...	...	...
Washington	400	6	15.00	...	...	...	...	...	...	...	...	...	...	...
Wauseon	2,148	1	.46	...	...	1	...	...	...	...	...	...	...	...
Waverly	1,854	20	10.79	...	...	1	...	...	...	...	...	...	...	1
Waynesburg	700	12	17.14	...	...	...	...	...	...	...	...	...	...	...
Waynesfield	700	3	4.29	...	...	...	...	...	...	...	...	...	...	...
Wellington	2,100	32	15.24	...	...	2	...	2	...	...	...	...	...	...
West Alexandria	900	11	12.22	...	...	...	...	...	...	...	...	...	...	...
West Carrollton	1,000	15	15.00	...	...	4	1	...	...	...	...	...	...	...
Westerville	1,800	19	10.56	...	...	4	...	1	...	...	...	2	...	...
West Jefferson	830	8	9.64	1	1	1	...	...	1	...	...	...	...	...
West Lafayette	900	16	17.78	2	1	3	...	1	...	...	...	...	...	...
West Leipsic	450	3	6.67	...	...	1	...	...	...	...	...	...	...	...
West Mansfield	1,000	4	4.00	...	...	1	...	...	...	...	...	...	...	...
West Milton	1,500	13	8.67	2	...	...	...	...	...	...	...	...	...	...
West Salem	700	10	14.29	...	...	1	1	...	...	...	...	...	...	...
West Union	1,200	6	5.00	...	...	1	...	...	1	...	...	...	...	...
West Unity	900	22	24.44	...	...	5	...	...	...	...	...	...	...	...
Wharton	439	5	11.39	3	...	1	...	1	...	...	...	...	...	...
Whitehouse	610	18	29.50	...	1	...	...	...	...	...	...	...	...	...
Williamsport	600	10	16.67	...	...	2	...	...	...	...	...	...	...	...
Willoughby	1,752	11	6.27	3	...	...	...	...	...	...	...	...	...	...
Willshire	600	9	15.00	3	...	...	...	...	...	...	...	...	...	...
Wilmington	4,000	35	8.75	2	5	8	2	...	...	...	...	2	...	1
Winchester	900	7	8.74	1	1	4	...	1	...	...	...	...	...	1
Windham	350	4	11.43	...	1	...	...	...	...	...	...	...	...	...
Woodfield	2,100	36	17.14	...	...	4	...	...	...	...	...	...	...	...
Woodstock	325	2	6.15	...	...	...	...	...	...	...	...	...	...	...
Wren	300	1	3.33	...	...	1	...	...	...	...	...	...	...	1
Wyoming	1,800	18	10.00	1	...	...	...	...	...	...	...	...	...	...
Yorkshire	200	3	15.00	...	...	...	...	...	...	...	...	...	...	...
Zaleski	700	6	8.57	...	3	4	...	1	...	...	...	1	...	...
Zanesfield	278	2	7.20	1
Total	517,910	5,742	11.09	512	259	1,034	95	180	70	11	25	51	18	45

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Adams—														
Meigs	2,350	14	5.96	4	1
Oliver	976	9	9.22	1
Tiffin	1,602	1	0.62	1
Wayne	1,204	18	14.95	1	1
Allen—														
Bath	1,517	16	10.55	...	3	...	...	...	...	...	...	...	...	...
Shawnee	1,493	18	12.06	...	...	...	...	...	...	...	...	...	...	...
Spencer	1,142	3	2.63	...	...	...	...	...	...	...	...	1	...	...
Ashland—														
Green	1,206	14	11.61	...	1	...	...	...	...	...	...	...	...	...
Jackson	923	5	5.42	...	...	...	...	1	...	...	...	...	...	...
Lake	684	6	8.77	...	...	...	...	...	...	...	...	...	...	...
Milton	869	4	4.60	...	1	...	...	...	...	...	...	...	...	...
Mohican	1,123	8	7.12	...	...	...	...	...	...	...	...	...	...	...
Orange	1,201	11	9.16	...	6	...	...	...	...	...	...	...	...	1
Perry	1,124	4	3.56	...	...	...	...	1	...	...	...	...	...	...
Ruggles	630	2	3.17	...	...	...	...	1	...	...	...	...	...	...
Sullivan	808	11	13.61	...	...	...	...	...	...	...	...	...	...	1
Vermilion	1,230	11	8.94	...	...	...	...	...	...	...	...	...	...	...
Ashtabula—														
Andover	719	7	9.74	...	...	...	1	...	...	...	...	...	...	...
Ashtabula	1,038	19	18.30	...	...	...	...	...	1	...	...	...	...	...
Harpersfield	833	3	3.36	...	...	...	1	...	...	...	...	...	...	...
Kingsville	1,412	20	14.16	...	...	...	1	...	...	...	...	...	...	...
Lenox	742	11	14.82	...	1	...	1	...	...	...	...	...	...	...
Morgan	562	6	10.67	...	1	...	...	1	...	...	...	...	...	...
New Lyme	837	15	17.92	...	...	...	1	...	...	...	...	...	...	...
Orwell	981	21	21.41	...	...	...	1	...	...	...	...	...	...	...
Pierpont	931	12	12.89	...	...	...	1	...	...	...	...	...	...	...
Plymouth	723	6	8.30	...	1	...	...	...	...	...	...	...	...	...
Richmond	848	5	5.90	...	...	...	3	...	1	...	...	...	1	...
Rome	589	16	10.19	...	...	...	...	...	...	...	...	...	...	...
Trumbull	855	7	8.19	...	...	...	...	...	...	...	...	...	...	...
Wayne	685	8	11.68	...	1	...	...	...	...	...	...	...	...	...
Williamsfield	900	8	8.89	...	...	...	1	...	...	...	...	...	...	1
Windsor	911	10	10.98	...	...	...	...	...	...	...	...	...	...	...
Athens—														
Alexander	1,173	13	11.08	...	...	...	1	...	...	...	...	...	...	...
Ames	1,256	6	4.78	...	1	...	...	...	...	...	...	...	...	...
Carthage	1,136	9	7.92	...	...	...	...	...	...	...	...	...	...	...
Dover	1,488	16	10.75	...	...	...	4	...	...	1	...	...	...	1
Rome	1,767	8	4.53	...	4	...	1	...	...	...	...	...	...	...
Troy	3,762	20	5.32	...	...	...	1	...	...	...	...	...	...	...
Waterloo	2,508	43	17.15	...	6	...	...	...	...	...	...	...	...	3
York	3,762	47	12.49	...	7	9	9	3	1	...	1	...	...	...
Auglaize—														
Duchouquet	1,636	30	18.34	...	2	1	6	...	1	1	...	...	...	...
Goshen	908	7	7.71	...	...	...	1	...	1	...	...	...	...	...
Jackson	731	3	4.10	...	...	...	...	...	...	...	...	...	...	...
Noble	1,360	8	5.81	...	...	...	...	1	...	...	...	...	...	...
Pusheta	1,275	11	8.63	...	...	...	...	...	...	...	...	...	...	...
Salem	959	6	6.26	...	1	1	...	...	...	...	...	...	...	...
Belmont—														
Smith	1,710	31	18.12	...	10	5	16	3	4	...	...	3	...	2
Wayne	1,415	6	4.24	...	...	...	...	...	...	...	...	...	...	...
Wheeling	1,222	4	3.27	...	...	...	...	...	...	...	...	...	...	...
Brown—														
Byrd	1,135	2	1.76	...	...	...	...	...	...	...	...	...	...	...
Franklin	959	7	7.30	...	...	...	...	...	...	1	...	...	...	...
Huntington	1,861	4	2.15	...	...	...	...	...	...	...	...	...	...	...
Jefferson	618	11	17.80	...	...	...	...	...	...	...	...	1	...	...
Washington	1,313	25	19.04	...	2	3	1
Butler—														
Hanover	1,152	12	10.42	1
Milford	1,176	14	11.90	...	5	...	5	...	5

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Lawrence—														
Hamilton	659	6	9.11
Perry	1,821	9	4.94	7	1
Union	2,564	9	3.51	1	3
Upper	1,849	3	1.62	3	1	1
Washington	659	1	1.52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Windsor	2,239	20	8.93	.....	.....	3	1	1	.....	.....	.....	.....	.....	.....
Licking—														
Burlington	922	5	5.42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Etna	955	5	5.24	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Fallsburg	836	8	9.57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin	676	7	10.35	.....	.....	4	4	.....	.....	.....	.....	.....	.....	.....
Hanover	983	6	6.04	1	5	2	1	1	.....	.....	.....	.....	.....	.....
Jersey	1,081	4	3.70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison	1,103	3	2.72	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
Mary Ann	827	1	1.15	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
McKean	824	5	6.07	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newark	1,198	4	3.34	.....	.....	3	3	.....	.....	.....	.....	.....	.....	.....
Newton	876	7	7.99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perry	807	4	4.96	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
St. Albans	766	5	6.53	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Logan—														
Jefferson	1,121	3	2.68	.....	.....	2	.....	1	.....	.....	.....	.....	.....	.....
Miami	657	1	1.52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	1,067	5	4.69	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Perry	1,047	10	9.55	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Stokes	1,471	2	1.36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington	636	2	3.14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lorain—														
Brighton	490	10	20.41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brownhelm	1,100	7	6.36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elyria	910	11	12.09	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Grafton	848	5	5.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pittsfield	782	11	14.07	1	2	.....	.....	1	1	.....	.....	.....	.....	.....
Rochester	402	8	19.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russia	981	5	5.10	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Lucas—														
Oregon	2,702	28	10.36	.....	4	5	7	2	.....	1	.....	.....	1	1
Providence	1,270	18	14.17	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Springfield	953	3	3.15	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....
Sylvania	1,270	19	14.96	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	1
Washington	3,449	20	5.58	.....	3	4	.....	.....	.....	.....	.....	.....	.....	.....
Madison—														
Canaan	881	3	3.41	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....
Deer Creek	882	14	15.87	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....
Fairfield	1,481	10	6.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pike	660	7	10.61	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Union	1,168	3	2.57	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....
Mahoning—														
Austintown	1,695	6	3.54	.....	.....	5	1	1	.....	.....	.....	.....	.....	.....
Beaver	1,929	11	5.70	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Berlin	725	9	12.42	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ellsworth	663	4	6.03	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Goshen	1,406	16	10.81	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Green	1,489	9	6.04	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson	903	5	5.54	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....
Smith	2,136	3	1.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marion—														
Bowling Green	978	8	8.18	1	.....	1	.....	1	.....	.....	.....	.....	.....	.....
Marion	1,360	6	4.41	.....	.....	3	2	.....	.....	.....	.....	.....	.....	.....
Pleasant	1,109	5	4.51
Prospect	850	5	5.88	3	2	1
Tully	877	9	10.26	1	1
Waldo	644	2	3.11

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Townships.	Estimated Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrhical Diseases.	Dysentery.	Malarial Fever.	Measles.
Medina—														
Chatham	904	14	15.49											
Hinckley	840	6	7.14											
Lafayette	1,157	7	6.14					1						
Medina	671	9	13.41			1			1					
Montville	743	6	8.08			1								
Spencer	953	7	7.27	3										
York	983	7	7.12											
Meigs—														
Chester	1,597	5	3.63			1	1							
Columbia	1,016	1	4.92											
Letart	1,216	12	9.87											
Olive	2,086	7	3.36	13		3			13					
Scipio	1,382	6	4.34			2								
Mercer—														
Butler	1,438	4	2.78	1										
Granville	2,329	1	.43		1	1	1							
Hopewell	1,313	1	.76			1								
Miami—														
Bethel	1,596	6	3.76	1	1	2			1					
Newton	1,980	11	5.56											
Staunton	1,184	4	3.38			1								
Washington	997	12	12.04	1		1								
Monroe—														
Benton	1,026	5	4.87											
Ohio	1,750	11	6.29			2	1							
Summit	695	8	11.51			5			1	1				1
Wayne	1,251	2	1.60			1					1			
Montgomery—														
Butler	1,676	9	5.37		1		1					1		
German	1,658	13	7.84	13	3	3			2	1				
Harrison	3,837	1	.26			1								
Mad River	2,310	6	2.55		1	2			1					
Wayne	1,041	9	8.65			1			1					
Morgan—														
Bristol	1,085	12	11.06	1	1	1								
Center	953	16	16.79	1	2	3			2	1				
Deerfield	839	4	4.77											
Homer	1,426	3	2.10	1	1									
Manchester	585	10	17.10	1	9	1			1					
Meigsville	1,078	12	11.13			2			1					
Windsor	1,745	20	11.46											
Morrow—														
Canaan	1,024	9	8.80			1			1					
Congress	983	5	5.09											
Harmony	711	8	11.25											
No. Bloomfield	960	6	6.25			1								
So. Bloomfield	742	8	10.78	1										
Troy	641	14	21.84											
Muskingum—														
Blue Rock	1,013	1	.99			1								
Clay	285	5	17.54	1	4									
Falls	1,680	21	12.50			2								
Highland	674	12	17.80			1								
Hopewell	1,372	9	6.51		2	3	3							
Licking	830	4	4.82			1								
Meigs	1,291	12	9.30			3	2							
Monroe	813	6	7.38	1		1			1					
Muskingum	812	2	2.46											
Rich Hill	1,219	5	4.10		1				1					
Salt Creek	1,024	14	13.67	1		2								
Union	817	8	9.79											
Noble—														
Buffalo	1,033	3	2.90											
Center	1,332	10	7.51			4		2	1					

ABSTRACT OF THE REPORTS OF DEATHS

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Townships.	Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Richland—														
Plymouth	736	2	2.72	...	...	...	...	...	...	...	...	...	...	...
Sandusky	598	1	1.67	...	...	...	...	...	...	...	...	...	...	...
Springfield	1,373	7	5.10	...	...	1	...	...	...	...	...	...	...	...
Worthington	1,258	20	15.90	2	12	...	...	...	...	...	...	...	...	...
Ross—														
Concord	2,240	13	5.80	...	2	1	...	...	...	...	...	...	...	...
Franklin	1,136	8	7.04	3	1	...	...	...	...	...	...	...	...	...
Huntington	2,269	3	1.32	...	...	...	...	...	...	...	...	...	...	...
Liberty	1,599	4	2.50	...	...	...	...	...	...	...	1	...	...	...
Paxton	980	6	6.12	...	1	1	...	...	...	...	...	...	...	1
Springfield	1,133	15	13.24	3	...	5	...	1	...	...	...	...	...	...
Twin	1,983	2	4.02	...	...	4	...	1	...	...	...	...	...	...
Union	2,317	7	3.02	...	...	5	1	...	...	...	1	...	...	...
Sandusky—														
Jackson	1,600	12	7.50	1	...	1	...	...	...	...	...	...	...	...
Madison	1,492	17	11.39	1	...	4	...	...	...	...	...	...	...	...
Townsend	1,567	13	8.30	...	...	...	...	...	...	...	...	...	...	...
Scioto—														
Bloom	1,718	13	7.57	...	...	3	1	...	...	...	...	...	...	...
Green	1,332	3	2.25	...	...	...	...	...	...	...	...	...	...	...
Madison	1,664	3	1.80	...	...	...	...	...	...	...	...	...	...	...
Morgan	1,035	5	4.83	1	...	...	...	...	...	...	...	...	...	...
Porter	2,500	35	14.00	11	3	5	...	...	...	...	2	...	1	...
Rarden	1,140	18	15.80	...	...	16	4	...	...	...	...	...	10	...
Vernon	918	7	7.63	3	4	2	...	1	...	...	...	...	...	...
Washington	1,269	7	5.52	...	...	1	...	...	...	...	...	...	...	...
Seneca—														
Big Spring	1,618	7	4.32	...	2	...	...	...	...	...	...	...	...	...
Jackson	1,453	8	5.51	1	...	...	...	...	...	...	...	...	...	...
Liberty	1,459	6	4.11	...	1	...	...	...	...	...	...	...	...	...
Loudon	1,142	1	.88	...	...	1	...	...	...	...	...	...	...	...
Thompson	1,545	21	13.59	2	...	...	...	...	...	...	...	...	...	...
Shelby—														
Clinton	1,149	11	9.57	2	1	3	...	1	...	...	...	...	1	...
Cynthiana	1,402	11	7.85	...	1	...	...	...	...	...	...	...	...	...
Loramie	1,528	9	5.89	1	...	...	...	...	...	...	...	...	...	...
McLean	1,171	2	1.71	...	...	2	2	...	...	...	...	...	...	...
Turtle Creek	1,163	7	6.02	2	...	4	1	1	...	1	...	...	...	...
Stark—														
Bethlehem	1,273	2	1.57	...	...	1	...	...	...	...	...	...	...	...
Canton	3,341	9	2.69	1	1	1	...	...	1	...	...	...	...	...
Jackson	2,090	11	5.26	3	...	...	...	...	...	...	...	...	...	...
Lawrence	2,972	16	5.38	2	2	2	...	1	...	...	1	...	...	...
Lexington	1,195	15	12.55	...	...	...	...	...	...	...	...	...	...	...
Marlboro	1,829	3	1.64	...	...	...	...	...	...	...	...	...	...	...
Nimishillen	1,839	17	9.24	...	...	...	...	...	...	...	...	...	...	...
Osnaburg	1,608	20	12.44	3	2	5	...	1	1	...	1	...	...	...
Paris	1,727	6	3.48	...	...	1	...	...	...	...	...	...	...	...
Perry	3,205	10	3.12	...	...	...	...	...	...	...	...	...	...	...
Pike	1,491	24	16.10	3	1	2	...	...	1	...	...	...	...	...
Plain	3,624	19	5.24	2	...	4	2	...	...	...	...	...	...	...
Sandy	637	5	7.85	1	...	...	...	...	...	...	...	...	...	...
Sugar Creek	1,836	14	7.61	...	...	2	...	1	...	...	...	...	...	...
Tuscarawas	4,139	31	7.49	5	3	6	...	...	...	...	...	...	...	...
Washington	1,668	13	7.79	...	...	2	...	...	...	...	...	...	...	...
Summit—														
Copley	802	9	11.22	...	...	...	...	...	...	...	...	...	...	...
Franklin	2,024	17	8.40	3	...	2	...	1	...	...	...	...	...	...
Green	1,602	7	4.37	...	...	...	...	...	...	...	...	...	...	...
Hudson	657	8	12.18	...	...	4	2	...	...	...	...	...	...	...
Northampton	814	5	6.15	...	...	...	...	...	...	...	...	...	...	...
Northfield	1,050	10	9.52	...	...	...	...	...	...	...	...	...	...	...
Norton	1,674	27	16.13	2	1	12	1	2	...	...	...	...	3	...
Richfield	930	6	6.45	...	...	1	...	...	...	...	...	...	...	...
Tallmadge	1,363	15	11.01	1	1	...
Twinsburg	805	7	8.70	1	...	1

ABSTRACT OF THE REPORTS OF DEATHS

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Trumbull—														
Bazetta	706	7	9.91											
Braceville	867	23	26.53	3	1									
Bristol	1,035	15	14.49			1							1	
Champion	732	5	6.83											
Fowler	764	8	10.47			1					1			
Greene	841	12	14.27	4	1	12		12						
Gustavus	844	10	11.85			1								
Hartford	1,195	6	5.02	3	3									
Howland	850	1	1.18											
Hubbard	1,441	9	6.25			1								
Johnston	753	16	11.25	1	1									
Liberty	1,595	11	6.90											
Lordstown	722	7	9.70											
Mecca	789	7	9.00											
Vernon	824	14	16.98	3	1									
Vienna	942	10	10.62											
Tuscarawas—														
Bucks	1,223	18	14.72			3					1			1
Franklin	962	5	5.11	1										
Goshen	2,266	31	13.32			32	3							
Jefferson	928	8	8.62			1	1							
Mill	549	16	29.14			3		1				1		1
Rush	1,094	1	1.91											
Sugar Creek	1,747	12	11.45			3								
Union	825	3	3.64			3	3							
Warren	796	9	11.31		12	6	1		1					
Warwick	1,632	12	7.35	3		12	1							
Washington	784	7	8.93	3										
York	1,027	13	12.66			12								
Union—														
Allen	957	6	6.27		3	1		1						
Claibourne	1,401	13	9.28	3		3		3						
Darby	980	5	5.10											
Dover	892	7	7.84			12								
Leesburg	1,170	5	4.27			12								
Washington	1,186	6	5.06			12				1				
Van Wert—														
Harrison	1,445	6	4.15	1	1	1								
Jackson	1,238	5	4.04											
Jennings	1,338	12	1.60											
Pleasant	1,336	35	26.20			11	12	12	12			1		1
Tully	1,736	14	8.06	1	1	1								
York	1,316	1	.76			1	1							
Vinton—														
Clinton	1,010	14	13.86	3		4								1
Eagle	1,073	3	2.80			3								
Knox	953	8	8.39	1	1	4		1						1
Madison	654	1	1.53			1								
Vinton	1,336	12	8.98			5								
Warren—														
Clear Creek	1,987	15	8.05	1	1									
Franklin	1,791	12	1.12			1		1						
Hamilton	1,693	8	4.72			1		1						
Harlan	1,650	6	3.64											
Union	555	12	3.60											
Washington—														
Aurelius	806	4	4.96			1		1						
Belpre	2,761	40	14.49	1	1	6		12						
Fairfield	758	5	6.60		1	1	1							
Lawrence	1,726	8	4.63											
Marietta	2,416	5	2.07	1	4	2								
Salem	1,310	17	12.98			5						1		
Warren	1,812	16	8.83	4		12		1	1					
Waterford	1,557	13	8.35			4		1			12		1	

ABSTRACT OF THE REPORTS OF DEATHS

Townships.	Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Wayne—														
Chester	1,648	14	8.49	...	...	3	...	...	1	...	...	...	...	...
Clinton	985	14	14.21	1	1	...	...	...	...	...	...	...	...	...
East Union	1,418	9	6.35	...	...	1	...	...	...	...	...	...	...	...
Franklin	1,202	3	2.50	...	...	...	...	...	...	...	...	...	...	...
Green	2,090	14	6.70	...	...	1	...	...	...	...	...	...	...	...
Paint	1,044	6	5.75	...	...	...	...	...	...	...	...	...	...	...
Salt Creek	1,045	6	5.74	1	1	1	...	1	...	...	...	...	...	...
Sugar Creek	1,608	19	11.82	2	...	3	...	2	...	...	...	...	...	...
Wayne	1,717	15	8.74	...	4	3	...	...	...	...	...	...	1	...
Williams—														
St. Joseph	1,090	11	10.09	1	1	2	...	1	...	...	...	...	...	...
Springfield	1,135	1	.88	...	...	...	...	...	...	...	...	...	...	...
Wood—														
Freedom	1,184	15	12.67	...	...	3	...	1	...	1	...	...	...	...
Jackson	1,448	5	3.45	...	...	...	...	...	...	...	...	...	...	...
Lake	1,703	2	1.17	1	...	2	1	...	...	...	...	...	...	...
Liberty	2,870	8	2.79	1	2	2	1	...	...	...	...	...	...	1
Milton	1,554	15	9.01	1	...	...	...	...	...	...	...	...	...	...
Perry	1,290	2	1.55	...	...	...	...	...	...	...	...	...	...	...
Perrysburg	2,514	14	5.57	5	...	2	2	...	1	...	...	...	3	...
Plain	1,120	4	3.57	...	...	...	...	...	...	...	...	...	...	...
Troy	1,940	3	1.55	...	...	3	...	...	...	...	...	...	...	...
Washington	868	11	12.67	...	...	1	...	...	...	...	...	...	...	...
Weston	659	26	39.45	1	2	3	1	...	...	...	...	...	...	...
Wyandot—														
Crawford	970	3	3.09	...	...	...	...	...	...	...	...	...	...	...
Mifflin	1,067	7	6.56	1	1	...	...	...	...	...	...	...	...	...
Richland	1,036	10	9.65	4	6	2	...	...	...	...	...	...	...	...
Salem	1,190	5	4.20	...	...	...	...	...	...	...	...	...	...	...
Total	762,288	5,579	7.32	403	265	1,060	178	150	58	13	24	59	11	46

ABSTRACT OF THE REPORTS OF DEATHS

	Estimated Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.
Cities (66)	1,949,870	30,017	15.39	5,109	2,392	4,640	385	392	179	36	1,180	151	34	137
Villages (385)	517,910	5,742	11.09	512	259	1,634	95	180	70	11	25	51	18	45
Townships (1,025) ...	762,288	5,579	7.32	403	265	1,060	178	150	58	13	24	59	11	46
Total	3,230,068	41,338	12.80	6,024	2,916	6,734	658	722	307	60	1,229	261	63	228

AND THEIR CAUSES DURING YEAR 1904

Puerperal Fever.
Scarlet Fever.
Tonsillitis.
Typhoid Fever.
Whooping Cough.
Total Constitutional Diseases.
Cancer.
Phthisis Pulmonalis.
Total Local Diseases.
Apoplexy.
Bright's Disease.
Bronchitis.
Convulsions.
Gastritis and Peritonitis.
Heart Disease.
Meningitis.
Pleurisy.
Pneumonia.
Total Developmental Diseases.
Total Violence.
Premature and Still Births.

SUMMARY OF MORTALITY REPORTS.

The total number of deaths reported from all causes—excluding premature and still-births—by the cities, villages and townships represented in the preceding tables was 41,338. The population of the cities, villages and townships represented (estimated) was 3,230,068, which is equal to an annual death rate of 12.80 per thousand living population represented.

The deaths in 3,015,598 living population (Census 1900) in 1903 were 38,288, equal to an annual death rate of 12.62 per thousand; while in 1902 the total number of deaths reported in 2,895,586 population was 35,743, equal to a mortality rate of 12.35 per thousand.

DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.

The number of deaths reported of children under five years of age (premature and still-born excluded) was 8,940, which is equal to 21.6 per cent. of the deaths from all causes, and a death rate of 2.8 per thousand population represented. The death rate of children under five the preceding year was 2.7 per thousand population represented.

ZYMOTIC DISEASES.

The total number of deaths reported from zymotic diseases was 6,734, which is equal to 16.3 per cent. of the deaths reported from all causes, and an annual rate of 2.8 per thousand population represented.

The number of deaths reported the preceding year from zymotic diseases was 6,827, equal to a death rate of 2.2 per thousand population represented.

CROUP AND DIPHTHERIA.

The total number of deaths reported from croup and diphtheria was 658, which is equal to 1.6 per cent. of the deaths reported from all causes, and a death rate of .20 per thousand of the population represented.

The number of deaths reported the preceding year from these causes was 789, equal to a mortality rate of .26 per thousand of the population represented.

CHOLERA INFANTUM, CHOLERA MORBUS AND DIARRHOEA.

The total number of deaths reported from cholera infantum, cholera morbus and diarrhoea was 2,011, which is equal 4.9 per cent. of the deaths reported from all causes, and a mortality rate of .62 per thousand population represented.

The number of deaths reported the preceding year from these causes was 1,794, which is equal to a mortality rate of .59 per thousand of the population represented.

MEASLES, SCARLET FEVER AND WHOOPING COUGH.

The total number of deaths reported from measles, scarlet fever and whooping cough was 527, which is equal to 1.3 per cent. of the number of deaths reported from all causes, and a mortality rate of .16 per thousand of the population represented.

The total number of deaths reported from these diseases during the preceding year was 637, equal to a mortality rate of .21 per thousand population represented.

TYPHOID FEVER.

The total number of deaths reported from typhoid fever was 1,521, which is equal to 3.7 per cent. of the total number reported from all causes, and a mortality rate of .41 per thousand population represented.

The number of deaths reported from this cause the preceding year was 1,548, equal to a mortality rate of .51 per thousand population represented.

CONSTITUTIONAL DISEASES.

The total number of deaths reported from constitutional diseases was 7,966, which is equal to 19.3 per cent. of the deaths from all causes, and a mortality rate of 2.5 per thousand population represented.

The number of deaths reported from constitutional diseases the preceding year was 7,097, equal to a mortality rate of 2.3 per thousand population represented.

CANCER.

The total number of deaths reported from cancer was 1,619, which is equal to 3.9 per cent. of the deaths reported from all causes, and a mortality rate of .50 per thousand population represented.

The number of deaths reported from this cause the preceding year was 1,524, equal to a mortality rate of .51 per thousand population represented.

CONSUMPTION.

The total number of deaths reported from consumption was 4,487, which is equal to 10.9 per cent. of the deaths reported from all causes, and a mortality rate of 1.4 per thousand population represented.

The total number of deaths reported from this cause the preceding year was 3,979, equal to a mortality rate of 1.3 per thousand population represented.

LOCAL DISEASES.

The total number of deaths reported from all local diseases was 18,789, which is equal to 45.5 per cent. of the deaths reported from all causes, and a mortality rate of 5.8 per thousand population represented.

The number of deaths reported from all local diseases the preceding year was 17,549, equal to a mortality rate of 5.8 per thousand represented.

BRONCHITIS, PLEURISY AND PNEUMONIA.

The total number of deaths reported from bronchitis, pleurisy and pneumonia was 4,688, which is equal to 11.3 per cent. of deaths reported from all causes, and a mortality rate of 1.5 per thousand population represented.

In the preceding year there were 4,029 deaths reported from these causes, equal to a mortality rate of 1.3 per thousand population represented.

CONVULSIONS AND MENINGITIS.

The total number of deaths reported from convulsions and meningitis was 1,680, which is equal to 4.1 per cent of the deaths reported from all causes, and a mortality rate of .52 per thousand population represented.

The number of deaths reported from these diseases the preceding year was 1,580, equal to a mortality rate of .52 per thousand population represented.

DEVELOPMENTAL DISEASES.

The total number of deaths from developmental diseases reported (excluding premature and still-births) was 2,797, which is equal to 6.8 per cent. of the deaths reported from all causes, and a mortality rate of .87 per thousand population represented.

During the preceding year there were 2,967 deaths reported from developmental diseases, equal to a mortality rate of .98 per thousand population represented.

VIOLENCE.

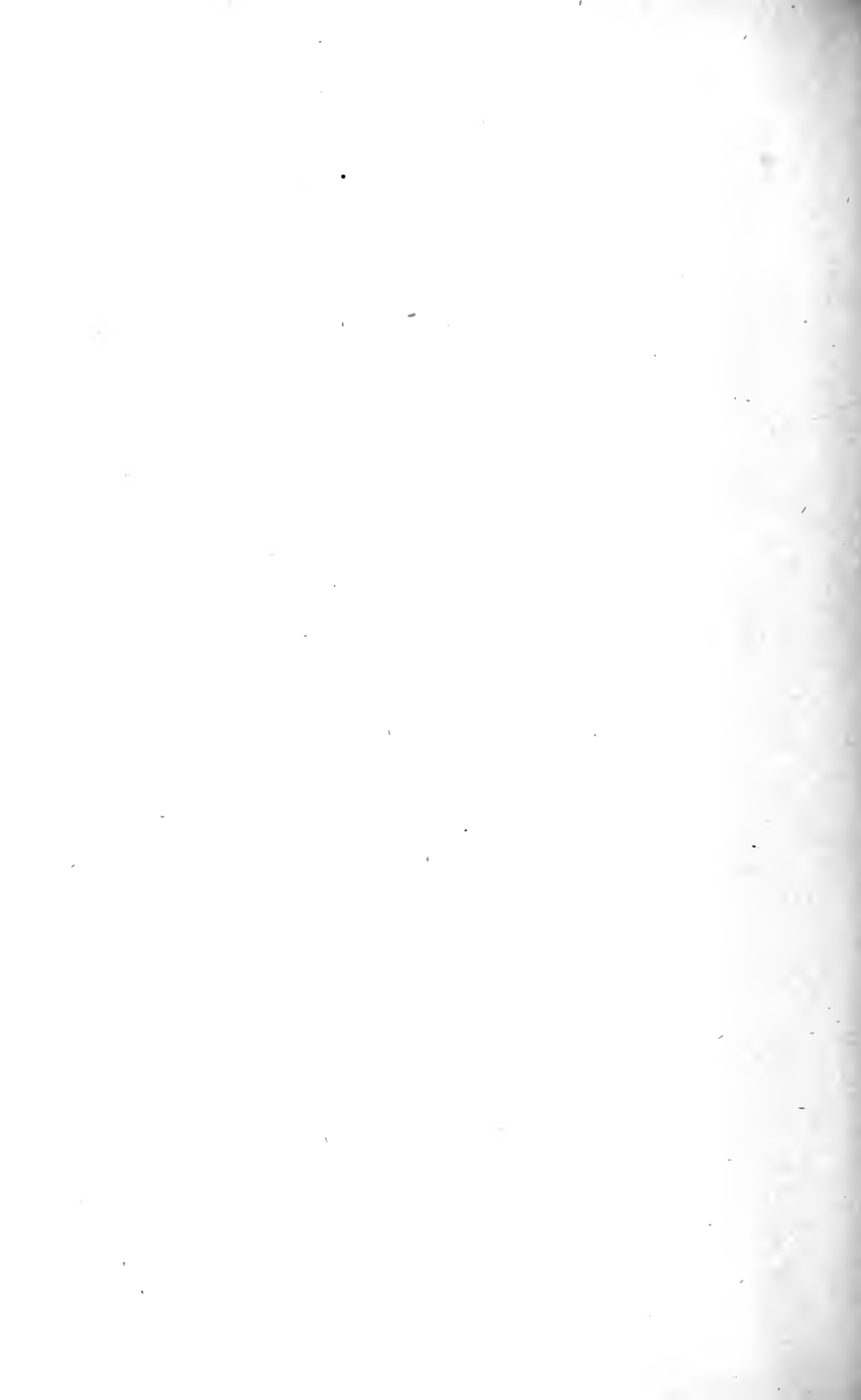
The total number of deaths reported from violence was 2,534, which is equal to 6.1 per cent. of the deaths reported from all causes, and a mortality rate of .78 per thousand population represented.

During the preceding year there were 2,505 deaths reported from violence, equal to a mortality rate of .83 per thousand population represented.

PREMATURE AND STILL-BIRTHS.

The total number of premature and still-births reported was 2,781, which is equal to 6.7 per cent of the deaths reported from all causes, and a rate of .86 per thousand population represented.

During the preceding year there were 2,793 premature and still-births reported, equal to a rate of .92 per thousand population represented.



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